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THE JOURNAL

OF THE

American Medical Association

Subscription, $7.00 | PUBLISHED WEEKLY | Single Copies, 25 Cents

VOLUME 98, No. 10 | 535 North Dearborn Street, CHICAGO, ILL. | MARCH 5, 1932

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Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Sec. 1103, Act of Oct. 3, 1917, authorized on June 14, 1918. If undeliverable, forwarding and return postage is guaranteed.

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Norris & Landis on Chest Diagnosis

It would be impossible in an advertisement to give adequate appreciation of the great amount of material in this edition that is not in the former. Suffice it to say that the book had virtually to be reset.

One of the most important features of this edition is the chapter on *The Transmission of Sound Through the Chest,* written by Dr. Charles M. Montgomery, who is an unquestioned authority on this subject. Other additions are to be chapters on x-ray diagnosis, the relation of nasal accessory sinus disease to infections of the lower air tract, the use of the bronchoscope in diagnosis, latent tuberculosis, tuberculosis in children, new work relating to the circulatory system.

In the first section of the book the authors present physical methods of diagnosis, training the reader to interpret signs and symptoms through the eye, the ear, and the sense of touch. The second section takes up the actual diagnosis of diseases of the bronchi, lungs, pleura, diaphragm, pericardium, heart, and aorta. There is a chapter on the *Electrocardiograph,* written by E. B. Krumbhaar, an authority second to none.

By GEORGE W. NORRIS, M.D., and H. R. M. LANDIS, M.D., Professors of Clinical Medicine in the University of Pennsylvania. With a chapter on the TRANSMISSION OF SOUND THROUGH THE CHEST by CHARLES M. MONTGOMERY, M.D., formerly Physician to the Phipps Institute; and a chapter on the ELECTROCARDIOGRAPH by E. B. KRUMBHAAR, M.D., Professor of Pathology, University of Pennsylvania. Octavo of 954 pages, with 478 illustrations. Cloth, $10.00 net

Another Successful SAUNDERS BOOK on PAGE 3

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 98, NO. 10 CHICAGO, ILLINOIS MARCH 5, 1932

PNEUMOCOCCUS TYPE II PNEUMONIA

A CLINICAL AND BACTERIOLOGIC STUDY OF ONE THOUSAND CASES, WITH ESPECIAL REFERENCE TO SERUM THERAPY *

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AND
NORMAN PLUMMER, M.D.
NEW YORK

In a previous article, we [1] have analyzed 1,161 cases of pneumococcus type I pneumonia treated in the wards of Bellevue Hospital, and have pointed out the beneficial effect of serum therapy in this type of infection. In the present article, we propose to discuss pneumococcus type II pneumonia and to report our results in the treatment of this disease with specific antipneumococcus serum. This investigation comprises 1,000 cases of type II pneumonia from the wards of Bellevue Hospital, and covers a consecutive series except for the year 1925-1926, which is not included because the records for that winter are incomplete. So far as we know, this is the first clinical study ever published in which pneumococcus type II pneumonia is considered as a separate entity. In 1927, Baldwin and Rhoades [2] contributed an article on the specific therapy of type II pneumonia, in which they discussed the effect of type II antipneumococcus serum on twelve cases, but there has been no detailed presentation of this type of pneumonia as a clinical entity.

BACTERIOLOGIC METHODS

From 1920 to 1929, the mouse method of typing sputum described by Avery, Chickering, Cole and Dochez [3] was employed as a routine. The objection to this method lay in the amount of time it involved. On the average, reports were not obtained in less than from eighteen to twenty-four hours, which meant serious delay in the institution of serum treatment. Since 1929, a combination of the original mouse method and the Krumwiede [4] and Sabin [5] methods of typing has been employed, and this procedure has enabled the laboratory worker to report the pneumococcus type on a high percentage of cases within from one to five hours. The actual routine is as follows:

The best specimen of sputum obtainable is sent to the laboratory as soon as the diagnosis of pneumonia has been made. A portion about the size of a bean is emulsified in physiologic solution of sodium chloride and from 0.5 to 1 cc. of this is injected into the peritoneal cavity of a mouse. The remainder of the sputum is typed by the Krumwiede method.[4] If the test gives a positive reading, it is usually accurate. If it is negative or unsatisfactory, the Sabin [5] microscopic method of typing is used by withdrawing a few drops of peritoneal exudate from the mouse and carrying out the agglutination reactions on a glass slide. If neither the Krumwiede nor the Sabin method gives positive reactions, the original mouse method of tube-agglutination and precipitation is performed in full.

If no sputum is available, a generous swab is made from the posterior pharynx and transferred to a tube of broth, which is allowed to incubate for two hours at a temperature of 37 C. One cubic centimeter of this culture is then injected into the peritoneum of a mouse, and microscopic or macroscopic typing is performed as previously outlined. Sputum, of course, is preferable, but the swab method, if properly carried out, gives accurate results. All readings, by whatever method obtained, are confirmed by typing the cultures obtained from the heart's blood of the mouse.

During the past three years, blood cultures were performed on all patients with lobar pneumonia shortly after their admission, and these were repeated daily on patients whose first blood culture was positive, and also on all patients who failed to improve under treatment. The usual procedure was to withdraw 3 cc. of blood from the patient's vein and add 1 cc. to a tube of broth and 1 cc. to each of two pour plates.

Routine cultures were also made from all pleural, pericardial and synovial exudates.

Accuracy of the Combination Method of Typing.—During the season of 1929-1930, specimens of sputum from 196 patients with lobar pneumonia were typed by the rapid methods. Fifty-eight of the 196 cases proved to be pneumococcus type II infections, as checked by cultures from the mouse's heart's blood. Of these fifty-eight cases, twenty-eight provided enough tenacious sputum to be tested by the Krumwiede method, and twenty-five of the twenty-eight gave a sharply positive reaction. In other words, 43 per cent of authenticated type II pneumonias were accurately typed by the Krumwiede method, and in fifty-two of the fifty-eight cases, or 90 per cent of the type II series, positive results were obtained with either the Krumwiede or the Sabin method. Thus, by using one or the other of these rapid methods of typing, 90 per cent of the fifty-eight type II pneumonias were accurately typed in less than five hours, and 43 per cent were successfully typed by the Krumwiede method in less than one hour. The Krumwiede method gave no false readings; the Sabin method only two.

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* From the Second (Cornell) Medical Division and the Department of Pathology of Bellevue Hospital, and the Department of Medicine, Cornell University Medical College.

1. Cecil, R. L.; and Plummer, Norman: Pneumococcus Type I Pneumonia, a Study of Eleven Hundred and Sixty-One Cases, with Especial Reference to Specific Therapy, J. A. M. A. **95**: 1547-1553 (Nov. 22) 1930.

2. Baldwin, H. S.; and Rhoades, D. R.: The Specific Therapy of Pneumococcus Type II Pneumonia, Am. J. M. Sc. **174**: 191 (Aug.) 1927.

3. Avery, O. T.; Chickering, H. T.; Cole, Rufus; and Dochez, A. R.: Acute Lobar Pneumonia, Prevention and Serum Treatment, Monograph 7, Rockefeller Institute for Medical Research, Oct. 16, 1917.

4. Krumwiede, Charles, Jr., and Noble, W. C.: A Rapid Method for the Production of Precipitin Antigen from Bacteria: An Attempt to Apply It to the Determination of the Type of Pneumococcus in Sputum, J. Immunology **3**: 1-10 (Jan.) 1918.

5. Sabin, A. B.: The Microscopic Agglutination Test in Pneumonia: Its Application to Rapid Typing and Control of Serum Therapy, J. Infect. Dis. **46**: 469-484 (June) 1930.

INCIDENCE

Of the various types of lobar pneumonia, pneumococcus type II ranks second in frequency, being exceeded only by the type I group. Table 1 indicates the relative incidence of the dominant types. In an analysis of 4,310 pneumococcal pneumonias, type I infections were most frequent, comprising 32.1 per cent of the whole series; type II came second with an incidence of 23 per cent, almost a fourth of the series; type III made up only 11.1 per cent. Group IV, which includes a large number of infrequent types, comprised 33.8 per cent. These figures, of course, apply to Bellevue Hospital only, but they agree fairly well with those of other institutions. For example, Avery, Chickering, Cole and Dochez [3] report an incidence of 29.3 per cent of type II pneumonia in a series of cases from the Hospital of the Rockefeller Institute, while Park, Bullowa and Rosenblüth [6] found a considerably lower incidence, only 15.6 per cent of type II infections in a series of 793 cases studied at the Harlem Hospital.

TABLE 1.—*Incidence of Pneumococcus Types in Lobar Pneumonia, Bellevue Hospital, 1920-1931* *

Pneumococcus	Number of Cases	Percentage of Incidence
Type I	1,384	32.1
Type II	991	23.0
Type III	477	11.1
Group IV	1,458	33.8
Total	4,310	

* 1925-1926 cases are omitted from this series.

Incidence of Type II Pneumonia in Children.—In a series of 329 cases of pneumonia in children at Bellevue Hospital (recently reported by Raia, Plummer and Schultz),[7] only 9 proved to be of type II origin. Three of these occurred in children under 3 years of age, the remaining six in children between 3 and 12 years of age.

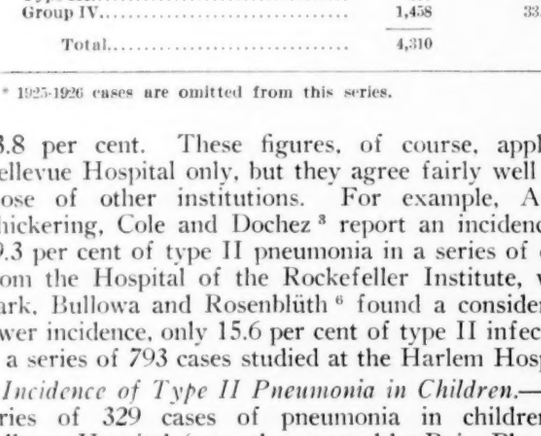

Chart 1.—Age distribution of type I and type II pneumonia, Bellevue Hospital, 1920-1931: solid line, type II pneumonia; broken line, type I pneumonia.

Incidence According to Age.—The age incidence of type II pneumonia corresponds fairly closely with that of type I. In reporting our previous studies,[8] we stated that pneumococcus type I pneumonia was particularly common in young people. This is true also of type II infection, but the difference in age distribution is not as striking as we had anticipated. Thirty per cent of our type I cases occurred in patients under 30 years of age; only 20 per cent of the type II series came within this age limit. This difference is offset by a slightly higher incidence of type II pneumonia in patients between the ages of 30 and 50, and also in those above 50. In table 2 the incidence, according to the various decades, is compared and this is shown graphically in chart 1. From this table the inference can justly be drawn that both type I and type II pneumonia occur chiefly in persons who are still leading active lives and are exposed frequently to contact infections.

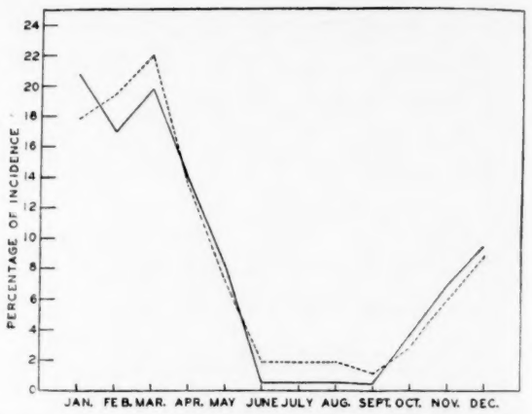

Chart 2.—Seasonal distribution of type I and type II pneumonia, Bellevue Hospital, 1920-1931: solid line, type II pneumonia; broken line, type I pneumonia.

In chart 2 the incidence by month of pneumococcus type II pneumonia is compared with that of type I infection. Here, the two types are more closely parallel. For both types the highest incidence is in January, February and March, and the lowest, during the summer months.

TABLE 2.—*Incidence of Type I and Type II Pneumonia According to Age, Bellevue Hospital, 1920-1931* *

Age	Type I Cases	Incidence, per Cent	Type II Cases	Incidence, per Cent
10–19	94	6.8	30	3.1
20–29	325	23.6	165	16.8
30–39	387	28.0	271	27.6
40–49	298	21.6	266	27.1
50–59	195	14.1	174	17.7
60 and over	81	5.9	76	7.7
Total	1,380		982	

* 1925-1926 cases are omitted from this series.

CLINICAL FEATURES

In our analysis of pneumococcus type I pneumonia, we spoke of type I pneumonia as a typical form of the disease. The same statement applies to the type II infection. Cole,[9] in his De Lamar lecture, states that type I pneumonia and type II pneumonia should be considered specific infectious diseases, just as typhoid is recognized as a specific infection. We are completely in harmony with this point of view. In our experience, it has not been possible to distinguish type I from type II pneumonia clinically, though perhaps it is safe to say that patients with type II infection tend

6. Park, W. H.; Bullowa, J. G. M., and Rosenblüth, M. B.: The Treatment of Lobar Pneumonia with Refined Specific Antibacterial Serum, J. A. M. A. **91**: 1503-1507 (Nov. 17) 1928.

7. Raia, Antoinette; Plummer, Norman; and Shultz, Selma: New Types of Pneumococci in the Pneumonias of Children, Am. J. Dis. Child. **42**: 57-68 (July) 1931.

8. Cecil, R. L.; Baldwin, H. S.; and Larsen, N. P.: Lobar Pneumonia; a Clinical and Bacteriologic Study of Two Thousand Typed Cases, Arch. Int. Med. **40**: 253-280 (Sept.) 1927.

9. Cole, R. I.: Acute Pulmonary Infections, De Lamar Lectures, 1927-1928, Baltimore, Williams & Wilkins Company, 1928.

to be more toxic and that their sputum is more prone to be markedly rusty and tenacious.

COMPLICATIONS

The incidence of complications in type II pneumonia varies but slightly from that in type I, except in respect to empyema, which occurs about half as frequently in the former as in the latter group. This is shown not only in the table of clinical complications (table 3) but also in the table of complications listed from autopsy observations (table 4). In Locke's study of 478 cases of empyema,[10] the preponderance of pneumococcus type I complications in the pleura is much more marked than in our own series. He found that in forty-nine cases of empyema 48.4 per cent yielded pneumococcus type I, while only 5.2 per cent were of type II origin.

It is interesting to note, as shown in table 4, that pneumococcus endocarditis occurred twice as frequently in type II as in type I pneumonia. This is probably related to the high incidence of pneumococcus bacteremia in type II pneumonia, a feature that will now be discussed.

BACTEREMIA

In a total of 202 cases in which no serum was administered, 162, or 46.4 per cent, showed type II pneumococci in the blood, yielded by culture at some time

TABLE 3.—*Complications in Type I and Type II Pneumonia of Adult Patients*

Complications	Type I (1,131 Cases)	Percentage of Incidence	Type II (991 Cases)	Percentage of Incidence
Empyema	73	6.5	38	3.8
Meningitis	20	1.8	24	2.4
Acute arthritis	10	0.9	5	0.5
Suppurative pericarditis	7	0.6	3	0.3
Endocarditis	4	0.4	12	1.2
Phlebitis	5	0.5	8	0.8
Pleurisy with effusion	26		15	
Cellulitis	32		17	
Cardiac irregularity	26		24	
Pneumothorax	3		..	
Lung abscess	4		5	
Parotitis	5		2	

or other during the course of the disease. This is considerably higher than the figure which we obtained for type I pneumonia (29.7 per cent) and goes far to explain why type II pneumonia is such a serious infection.

MORTALITY RATE

Table 5 shows the annual mortality rate for type II pneumonia from 1920 to 1931. None of the patients listed in this table received serum. The annual rate varies from 38.7 to 57.2 per cent. Some of this variation, perhaps most of it, is due to the fact that the number of cases for each year is comparatively small. The total of 441 cases showed a death rate of 48.8 per cent. In other words, practically half of the type II pneumonias at Bellevue Hospital end fatally. While the result is consistent with the type of patient treated in this hospital, it is interesting to compare this death rate with that of 28.5 per cent reported by Cole[9] from the Hospital of the Rockefeller Institute, and with that of 30 per cent reported by Park, Bullowa and Rosenblüth[6] in the Harlem Hospital. Undoubtedly, the general physical condition of the patient has a great deal to do with the outcome in this as in other types of pneumonia. We have reason to believe that the high incidence of alcoholism is a factor in the high death rate at Bellevue.

10. Locke, E. A.: Acute Empyema, New England J. Med. **203**: 391-398 (Aug. 28) 1930.

Our figures show a definite relationship of bacteremia to the mortality rate in type II pneumonia. In the series that received no serum, sixty-four cases with bacteremia showed a death rate of 87.5 per cent, while seventy-one cases with sterile blood cultures yielded a death rate of only 8.5 per cent. The close relation between bacteremia and the mortality rate has been

TABLE 4.—*Complications in Type I and Type II Cases—Autopsies*

Complications	Type I (52 Cases)	Percentage of Incidence	Type II (79 Cases)	Percentage of Incidence
Empyema	14	26.9	9	11.4
Meningitis	6	11.5	10	12.7
Endocarditis	3	5.8	9	11.4
Suppurative pericarditis	2	3.8	2	2.5
Lung abscess	1	1.9	3	3.8
Miliary lung abscess	2	3.8	3	3.8

stressed in our previous studies and by other observers, but it is particularly well illustrated in pneumococcus type II infections.

The death rate for type II pneumonia at Bellevue Hospital is almost twice as high as that for type I, 48.8 per cent versus 28.2 per cent. It is interesting to note how closely these figures compare with the incidence of bacteremia in these two types of pneumonia:

Type	Bacteremia Per Cent	Death Rate Per Cent
Pneumococcus type I pneumonia	29.7	28.2
Pneumococcus type II pneumonia	51.1	48.8

The mortality is not only closely related to the presence or absence of bacteremia but is also dependent in great measure on the number of organisms present in the blood stream. Three patients who received no serum showed 22, 25 and 68 colonies of type II pneumococcus in their blood culture plates but, in spite of this handicap, recovered. Except for these three cases, no patient recovered who had more than 5 type II pneumococci per cubic centimeter of blood. This statement, of course, applies only to patients who received no serum. The serum-treated patients will be discussed later.

There also appears to be some difference in the significance of early and late bacteremia. An early bacteremia, if not severe, is sometimes overcome; that developing late in the disease is practically always fatal.

TABLE 5.—*Annual Mortality Rate of Patients with Type II Pneumonia Not Receiving Serum, Bellevue Hospital*

Year	Number of Cases	Deaths	Mortality Rate
1920-1921	32	13	40.6
1921-1922	42	17	40.5
1924-1925	30	15	50.0
1926-1927	31	15	48.4
1927-1928	77	44	57.2
1928-1929	69	34	49.3
1929-1930	62	24	38.7
1930-1931	98	53	54.1
Total	441	215	48.8

The mortality rate for type II pneumonia varies, of course, with the age. Between the ages of 20 and 30 the death rate in the present series was only 22.2 per cent, while in patients over 60 the death rate was 78.5 per cent. The mortality rate was also closely related to the complications. All the patients who developed pneumococcus meningitis, endocarditis or peritonitis died. Thirty-eight patients with empyema showed a death rate of 50 per cent.

SPECIFIC TREATMENT

In our recently published study of pneumococcus type I pneumonia, we reported a series of 239 cases of type I infection treated with concentrated and refined antipneumococcus serum, compared with a control series of 234 untreated cases. The death rate in the latter was 31 per cent, as compared with only 20 per cent in the serum-treated cases, and there was a still further reduction to 11.2 per cent in cases treated within seventy-two hours after onset. From experimental, clinical and statistical evidence, we concluded that type I antipneumococcus serum, when administered early and in adequate doses, usually yielded satisfactory results.

During our study of the specific treatment of type I pneumonia, we became interested in the subject of serum therapy for type II pneumonia. Since the death rate in type II infections is approximately twice that in type I, the need of some form of specific treatment is obvious. Furthermore, there is such a close bacteriologic relationship between pneumococcus type I and pneumococcus type II, and so much clinical resemblance in the infections which they produce, that a certain similarity in their response to specific serum would seem reasonable. However, certain fundamental differences between the two diseases do exist. In the first place, the very fact that type II pneumonia is such a fatal infection means that, in order to be efficacious, a serum must be administered early in the course of the disease and must be of high potency. Secondly, according to the work of Dochez and Avery,[11] there is a greater amount of soluble substance in the blood and urine of a patient with type II pneumonia than in that of a patient with a type I infection. The serum, to be efficient, must neutralize all this soluble substance and must eliminate from the blood stream the pneumococci which are usually present in severe cases. This again calls for the administration of a highly potent serum early in the disease. Attempts to meet these requirements encounter great difficulties because, although it is important to have a highly potent serum for the treatment of type II pneumonia, the serum produced by immunizing horses against pneumococcus type II is usually much lower in content of agglutinins, precipitins, and other protective bodies than a good type I serum.

In a previous article, we pointed out the experimental, clinical and statistical evidence that has been accumulated in favor of type I serum, but so far the evidence in support of type II serum is largely of a theoretical or experimental nature. Various laboratory animals can be immunized with killed cultures against pneumococcus type II infection, and mice can be uniformly saved from a fatal type II sepsis if sufficient type II serum is injected simultaneously with the culture. Cecil and Steffen[12] found that Huntoon's pneumococcus type II antibody solution possessed the faculty of sterilizing the blood in type II pneumonia in monkeys, provided the sepsis was not too severe at the time the serum was introduced. So far as clinical evidence in favor of an efficacious type II serum is concerned, there is some difference of opinion. Cole,[13] for example, treated a small series of type II pneumonias with homologous antipneumococcus serum and was quite discouraged with the results obtained. In 1917 Avery, Chickering, Cole and Dochez[3] said: "The serum of type II is much less efficacious. Indeed, it has not yet been thoroughly demonstrated whether it has any practical effect on the outcome of the disease or not." Cole's explanation of the inefficacy of type II serum was that it was not sufficiently potent. He says: "Whereas the horse serum against type I infection is of such a strength that 0.2 cc. will regularly protect a mouse against 0.1 cc. of virulent culture, it has been impossible to produce an immune type II serum of any greater activity than that 0.2 cc. will protect a mouse against 0.01 cc. of culture."

Ten years later, however, we were able to obtain from the New York City Board of Health a type II antipneumococcus serum of such potency that 0.2 cc. would protect a mouse against 0.2 cc. of virulent type II culture. In other words, the serum was twenty times as potent as that employed by Cole and his co-workers in their therapeutic experiments with type II serum. The results obtained with this serum were more encouraging than those reported by Cole and were made known in an article by Baldwin and Rhoades[2] in 1927. These writers succeeded in sterilizing the blood of a small number of patients with type II pneumonia, and, furthermore, they noted some rather striking clinical reactions in certain type II cases which they had treated early in the course of the disease.

These earlier investigations with type II antipneumococcus serum demonstrated quite clearly that if the serum were to be of any value at all it would have to be employed in a highly concentrated form. Gay and Chickering,[14] in 1915, found that by mixing immune serum with a solution of pneumococcus bodies of the same type, a precipitate was formed which contained most of the protective substance of the serum. This could be dissolved in an akaline medium and a clear solution of pneumococcus antibodies obtained. In 1921, Huntoon[15] modified this method, using the washed pneumococcus bodies, and thus produced a therapeutic agent practically free from serum protein, and fairly potent in protective substance against type I and type II pneumococcus. Felton,[16] in 1924, found that practically all the protective substance could be obtained in a precipitate formed by adding the serum to a large amount of distilled water. More recently, Felton[17] has combined the salting-out method of Avery with his own, to refine and concentrate to a further degree the pneumococcus serum for therapeutic use.

INVESTIGATION AT BELLEVUE HOSPITAL

Our first experience with the specific treatment of type II pneumonia was in 1920, when we undertook to investigate the immunologic and therapeutic properties of Huntoon's "pneumococcus antibody solution." This product was not a serum but an aqueous solution of immune bodies which had been removed from antipneumococcus serum by adding to it an excess of pneumococci and later dissociating the immune sub-

11. Dochez, A. R.; and Avery, O. T.: The Elaboration of Specific Soluble Substance by Pneumococcus During Growth, J. Exper. Med. **26:** 477 (Oct.) 1917.

12. Cecil, R. L., and Steffen, G. I.: Studies on Pneumococcus Immunity: V. The Treatment of Experimental Pneumococcus Pneumonia in Monkeys with Pneumococcus Antibody Solution, Bull. 141, Hyg. Lab., April, 1925.

13. Cole, Rufus: The Neutralization of Antipneumococcus Immune Bodies by Infected Exudates and Sera, J. Exper. Med. **26:** 453 (Oct.) 1917.

14. Gay, F. P.; and Chickering, H. T.: Concentration of the Protective Bodies in Antipneumococcus Serum by Means of Specific Precipitation, J. Exper. Med. **21:** 389-400, 1915.

15. Huntoon, F. M.: Antibody Studies: I. Reversal of the Antigen-Antibody Reaction; II. The Recovery of Antibody from Sensitized Antigens: Technic; III. Chemical Nature of Antibody, J. Immunology **6:** 117-200 (March) 1921.

16. Felton, L. D.: A Study of the Isolation and Concentration of the Specific Antibodies of Antipneumococcus Sera, Boston M. & S. J. **190:** 819-825 (May 15) 1924.

17. Felton, L. D.: Concentration of Pneumococcus Antibody, J. Infect. Dis. **43:** 543-553 (Dec.) 1928.

stances from the bacteria. Huntoon's antibody solution was polyvalent, but its protective power against type II was not as high as against type I. The results of our two years' experience with Huntoon's antibody solution [18] have been published in full. Eighty-three cases of type II pneumonia, admitted to six medical wards of Bellevue Hospital, were treated with antibody solution and showed a death rate of 27.7 per cent. Sixty-seven control cases, admitted to six other medical wards during the same period of time, received no specific treatment and showed a death rate of 40.3 per cent. These figures were slightly in favor of the treated group, but the series was too small to have much significance. Because of its low potency and its tendency to produce severe chills, we abandoned the use of Huntoon's antibody solution in 1922. This experiment, however, showed the desirability of obtaining some form of purified serum. Huntoon's antibody solution was practically free from horse protein, so that its administration was never followed by anaphylactic reactions or serum sickness.

FELTON'S CONCENTRATED SERUM

From 1924 to the present time, Felton's concentrated antipneumococcus serum has been used at Bellevue Hospital. The method of preparation of this serum has been described in previous articles by us and in Felton's own papers.[19] The finished product is a slightly opalescent aqueous solution, rich in pneumococcus immune bodies.

TABLE 6.—*Comparison of the Common Immunologic Reactions of Type II Pneumococcus Serum and Its Concentrate (Felton)*

	Serum	Concentrate
Precipitins	25-100*	200-2,000
Agglutinins	20	300
Complement fixation	20	120
Opsonins	40	320
Bactericidal action†	5×10^2	2×10^5
Protection	400	3,000
Neutralization	25	300

* The figures indicate the highest dilutions giving positive reactions.
† The figures indicate the actual number of bacteria killed.

The potency of Felton's serum varies with different lots, but manufacturers overcome this difficulty by pooling the serum from several horses. The actual ratio of the potency of the concentrated to that of the unconcentrated serum has been difficult to determine, for the reason that laboratories have employed different methods of standardization. Felton,[20] however, has recently published an article in which he presents a comparison of the common immunologic reactions of unconcentrated serum with those of the concentrated product. This is shown in table 6. The concentrated type II serum was prepared from a certain lot of standard serum and then compared with the original serum in respect to its content of immune bodies. It was found to contain far more precipitins, agglutinins, opsonins and other protective substances than the original serum. The difference in protection is particularly marked and in this experiment indicates that the concentrate was about eight times as potent as the unconcentrated serum.

From 1924 to 1930 we conducted a carefully controlled therapeutic experiment with Felton's serum on patients with type II pneumonia. The alternate case method was used in our investigation; that is, every patient diagnosed as having lobar pneumonia was given a number, and those with even numbers received serum, while those with odd numbers served as controls. The method of administering the concentrated serum has been described in detail in a previous article. After a preliminary test for sensitiveness to horse serum, 5 cc. of concentrated serum was slowly injected intravenously. If no reaction occurred, from 10 to 20 cc. was introduced into the blood stream one or two hours later, the dose depending on the potency of the preparation and the severity of the case. In general, we tried to administer from 100,000 to 200,000 units (from 40 to 100 cc.) during each twenty-four hour period until the patient showed definite signs of recovery or until it was evident that the serum was exerting no influence whatever on the disease.

The effect of type II serum on the clinical course of the disease is not by any means as striking as that produced by serum in type I pneumonia. Even when patients are treated very early, a rapid drop in temperature with concomitant improvement is rarely achieved. There is, however, a definite impression among most of the clinicians who have followed type II serotherapy that the symptoms of toxemia are usually less pronounced in the treated cases.

EFFECT ON BACTEREMIA

One of the most important problems in this study was to determine the effect of type II serum on pneumococcus type II bacteremia. As has already been stated, the outcome of a case of type II pneumonia depends to a great extent on whether or not the blood remains sterile. The figures cited in the untreated cases showed a mortality rate of only 8.5 per cent when the blood cultures remained negative, as against 87.5 per cent when the patients became septic. Furthermore, only two of the patients in our entire control series whose blood contained more than 10 type II organisms per cubic centimeter recovered. With these facts in mind it seemed reasonable to assume that, if concentrated serum was potent enough to sterilize the blood, it would have a favorable effect on the outcome of the disease.

Under certain circumstances, Felton's type II serum has, without doubt, the capacity to sterilize the blood and to keep it sterile. In most of the early cases with beginning septicemia the blood culture became negative when sufficient serum was administered, and as a result the chances of recovery seemed to be greatly increased. Charts 3 and 4 show the clinical courses of two such cases. In both patients, a definite therapeutic effect was apparently achieved by the prompt administration of serum. At any rate, they show a course not taken by our control cases. Large amounts of serum will practically always sterilize the blood of even late type II cases with marked sepsis, but this accomplishment usually has no effect on the final outcome of the disease. A remarkable case in our series had innumerable colonies of type II pneumococcus in the blood on admission, as shown in a 1 cc. pour-plate culture. The blood was successfully sterilized with large amounts of serum, but empyema developed, followed by a lung abscess, and the patient died eight months later.

Chart 5 clearly shows that sepsis was more marked in the treated patients who recovered than in the

18. Cecil, R. L., and Larsen, N. P.: Clinical and Bacteriologic Study of One Thousand Cases of Lobar Pneumonia, with Special Reference to the Therapeutic Value of Pneumococcus Antibody Solution: Preliminary Report, J. A. M. A. **79**: 343-348 (July 29) 1922.
19. Felton (footnotes 16 and 17).
20. Felton, L. D.: The Concentration of Antipneumococcus Serum, J. A. M. A. **94**: 1893-1896 (June 14) 1930.

controls. *Twenty-three septic patients who received serum recovered while only ten without serum got well.* The maximum number of organisms in 1 cc. of blood was 333 in the treated series; 68 in the control. Furthermore, nine of the serum treated group had more than 10 pneumococci in each cubic centimeter of blood; only two of the control group had such a quantity.

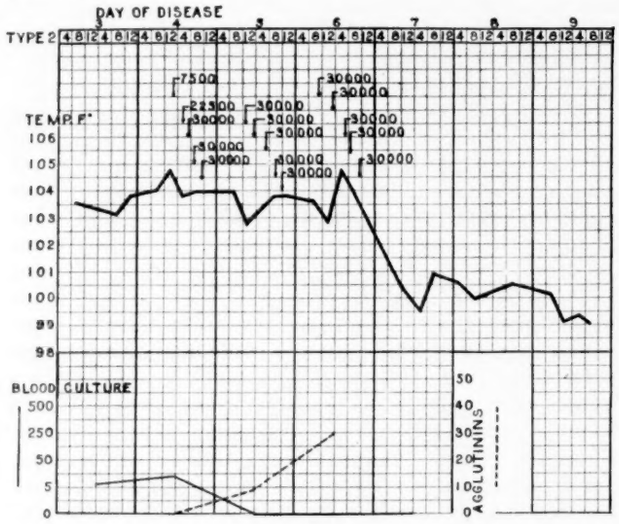

Chart 3.—Temperature, results of blood culture, and agglutinin titer of F. H., aged 26, with type II pneumococcus pneumonia, admitted to Bellevue Hospital on the third day of his illness. The blood culture on the day of admission showed 8 type II pneumococci per cubic centimeter of blood, and on the next day, the fourth day of the patient's illness, 22 organisms. On that day, 80 cc. (120,000 units) of Felton's concentrated serum was given intravenously, and the following day the blood was sterile with a moderate amount of type II agglutinins. On the fifth and sixth days, serum therapy was continued (100 cc., 150,000 units each day). The blood remained sterile, the agglutinins rose rapidly, and the patient had a temperature crisis on the seventh day.

Since 1928, blood cultures have been taken as a routine on all patients included in the type II series. In the septic cases the mortality rate for the control group has been 88 per cent; for the treated group, 69 per cent. The capacity on the part of type II serum to prevent bacteremia is further shown by the fact that,

TABLE 7.—*Comparison of Mortality Rate in Cases Treated with Felton's Concentrated Serum and Control Cases* *

Year	Treated			Control		
	Cases	Deaths	Mortality, per Cent	Cases	Deaths	Mortality, per Cent
1924-1925	30	10	33.3	29	14	48.3
1926-1927	29	12	41.4	31	15	48.4
1927-1928	73	28	38.4	71	38	53.5
1928-1929	64	30	46.8	64	29	45.3
1929-1930	56	22	39.3	58	20	34.5
Total	252	102	40.5	253	116	45.8

* Patients dying within twenty-four hours are not included.

while 91 per cent of the untreated patients who died had positive blood cultures, 74 per cent of the treated died with bacteremia.

EFFECT OF TYPE II SERUM ON MORTALITY RATE

The effect of concentrated type II serum on the mortality rate of type II pneumonia is indicated by the year in table 7. Altogether 252 cases of type II pneumonia have been treated with concentrated type II serum, with a death rate of 40.5 per cent, while 253 alternate controls show a mortality of 45.8 per cent. The difference in the rates of the two groups is certainly not striking. Furthermore, it will be noticed that for two seasons the death rate in the treated series was slightly higher than that in the control.

It is interesting to compare the results of serum treatment in type II pneumonia at Bellevue Hospital with the results of well controlled series in other institutions. In table 8 the results of previously published studies are summarized. This comparison suggests more promising results for type II serum than were indicated in our own experience. All these investigators used Felton's serum and each used the alternate

TABLE 8.—*Comparison of Mortality Rate in Cases Treated with Felton's Concentrated Serum and Control Cases*

Investigators	Treated			Control		
	Cases	Deaths	Mortality, per Cent	Cases	Deaths	Mortality, per Cent
Finland: New England J. Med. **202**: 1244 (June 26) 1930	39	11	28.2	32	11	34.4
Park, Bullowa and Rosenblüth [6]	56	13	23.0	61	18	30.0
Baldwin: Am. J. M. Sc. **181**: 788 (June) 1931	35	9	25.7	29	15	51.7
Cecil and Sutliff: J. A. M. A. **91**: 2035 (Dec. 29) 1928*	102	40	39.2	102	53	52.0
Total	232	73	31.4	224	97	43.3

* This series is included in the present study.

case method of control. In the total series the mortality rate in 232 cases of type II pneumonia treated with Felton's serum is 31.4 per cent, while in the 224 control cases it is 43.3 per cent.

Although our own figures gave little, if any, evidence in support of type II concentrated serum, the more favorable results obtained by other investigators, as well as our own encouraging experience in early septic cases, led us in the fall of 1930 to continue the investigation. At that time, however, it was decided to limit serum treatment to patients admitted to the hospital within seventy-two hours of the onset of their

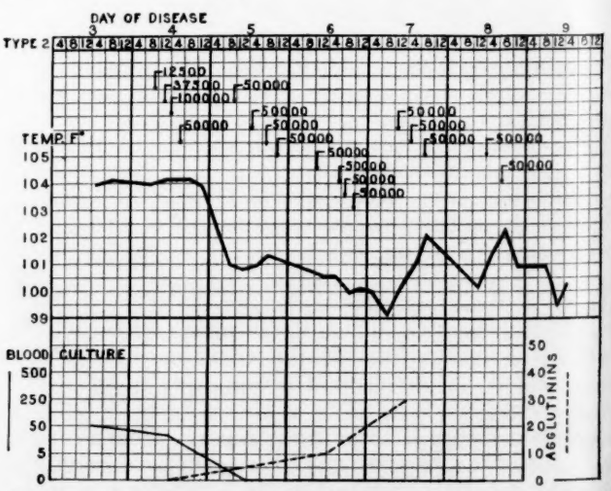

Chart 4.—Temperature, results of blood culture, and agglutinin titer of J. C., aged 44, with type II pneumococcus pneumonia, admitted to Bellevue Hospital on the third day of his illness. The blood culture on the day of admission showed 59 type II pneumococci per cubic centimeter of blood, and on the following day, the fourth day of the patient's illness, 28 organisms. On that day, 80 cc. (200,000 units) of Felton's concentrated serum was given intravenously. The temperature dropped from 104 to 101 F., the blood became sterile, the agglutinins in the blood began to rise, and the patient appeared less toxic. Serum treatment was continued on the fifth, sixth, seventh and eighth days of the illness to insure protection against a relapse.

infection, as it was thought that if the serum had any value it would be most evident in the early cases; moreover, it would be possible to give thorough serum treatment and more careful study to the smaller series.

The results of our 1930-1931 study, shown in table 9, are rather surprising. There were twenty control cases with thirteen deaths (65 per cent); and twenty-one cases treated with serum, with three deaths (14.3 per cent). Table 10 shows that the age and other complicating factors were slightly against the control cases, but not to such a degree as to be responsible for the marked difference in mortality rate. Furthermore, of all the patients who recovered, only two controls were septic, while six who were treated had pneumococci in the blood stream. These results are very encouraging but cannot be considered conclusive, because of the small number of cases in the series.

TABLE 9.—*Comparison of Mortality Rate in Cases Treated with Felton's Concentrated Serum and Control Cases Admitted Within Seventy-Two Hours of Onset 1930-1931*

	Number of Cases	Deaths	Mortality, per Cent
Control	20	13	65.0
Treated	21	3	14.3

COMMENT

The present investigation has served to demonstrate that type II pneumonia, as it occurs in Bellevue Hospital, is one of the most serious infections encountered in this climate. The incidence of type II is considerably less than that of type I pneumonia, but the mortality rate is so much higher that the actual number of deaths resulting from type II pneumonia is greater than that from type I. The two diseases run a somewhat similar clinical course. However, empyema is a more frequent complication in type I pneumonia, while bacteremia is much more common in type II infection. Bacteremia is probably an important factor in the high death rate in type II pneumonia.

The time has come when we must think of the various pneumococcus "types" as etiologic agents of independent diseases. Such an attitude is necessary before the specific treatment of pneumonia can be put on a rational basis; and, furthermore, this etiologic diagnosis is of definite aid to the physician in making a prognosis. Let us visualize two patients with pneumonia on the fifth day of the disease, each with two lobes involved, and with a temperature of 104 F. What a difference there is in prognosis, if one patient has a type I infection with a sterile blood culture, and the other, a type II, with bacteremia! The former patient will probably recover; the latter will almost certainly die.

TABLE 10.—*Analyses of 1930-1931 Series*

	Control	Treated
Average age	42 years	37 years
Number over 50 years	4	3
Bacteremia on admission	9	7
Complicating systemic disease	5	6
Chronic alcoholism	8	7

The rapid methods of typing described in this article are comparatively simple and make it possible for the physician to know the pneumococcus type on the same day that the diagnosis of pneumonia is made. About 55 or 60 per cent of cases will fall into either the type I or the type II group. Every patient with type I pneumonia should have serum treatment. In this article we have presented evidence that concentrated and refined serum has some therapeutic value in the treatment of type II pneumonia. Certainly, it appears more promising than any other form of specific treatment available. The carbohydrate-splitting enzyme that Avery and Dubos [21] have isolated offers hope for the eventual control of type III pneumonia, but thus far no enzyme has been discovered which affects type II organisms. Pneumococcus vaccine is being advocated by some for the treatment of all types of pneumonia, but evidence has not been furnished to prove that it affects the course or mortality rate of lobar pneumonia. Reports [22] have appeared recently which show a marked reduction in mortality rate following the use of vaccine, but the cases were not sufficiently studied, either clinically or bacteriologically, nor was the series well enough controlled to make the conclusions justifiable.

In attempting to evaluate the statistical evidence in support of type II serum, it must be remembered that the product which was used in the first years of our investigation was not nearly as potent as that which is now available. During the season of 1930-1931, the death rate in a group of twenty-one serum treated cases (admitted to the hospital early) was only 14.3 per cent, compared with 65 per cent for twenty early controls. This series of cases is too small to carry much significance. If, however, such a marked difference in mortality rate is maintained through the next two or three seasons, it will serve as strong evidence in favor of serum treatment.

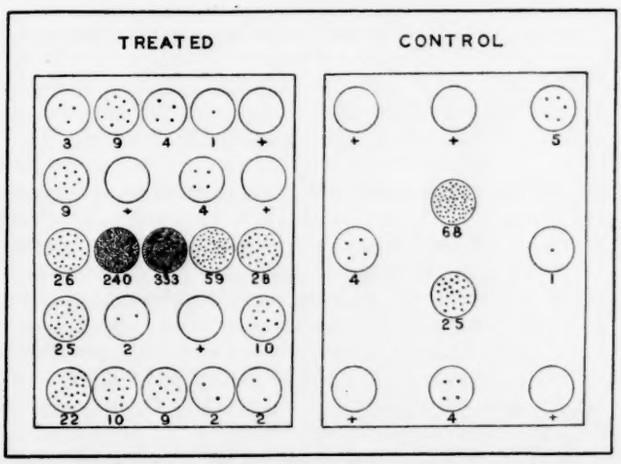

Chart 5.—Figures showing the results of blood culture in patients who recovered from type II pneumococcus bacteremia. One panel refers to the treated, and the other, to the control cases. The circles represent blood culture plates, and the dots, colonies of pneumococci. The circles without dots and with a plus (+) sign denote cultures in which the broth only was positive.

The effect of type II serum on the clinical course of type II pneumonia is certainly not as striking as that produced by refined serum in type I pneumonia. The sharp drop in temperature so often achieved in cases of type I infection treated early with serum is rarely obtained in type II cases. Serum-treated patients, however, appear less toxic and seem to run a somewhat milder course than the untreated.

Additional evidence in favor of type II serum lies in its effect on type II bacteremia. This is shown in a reduction of the mortality rate from 88 per cent in the septic cases without serum to 69 per cent in the septic cases with serum. An analysis of the recovered

21. Avery, O. T., and Dubos, René: The Protective Action of a Specific Enzyme Against Type III Pneumococcus Infection in Mice, J. Exper. Med. **54**: 73-89 (July) 1931.

22. Sutton, D. C.; Kendall, A. I., and Rosenblum, Albert: Immunizing Value of "Natural Bacterial Antigens," Study No. 1—Pneumococci, Am. J. M. Sc. **182**: 454-459 (Oct.) 1931.

cases also shows a striking difference in the degree of bacteremia in the treated and untreated groups. This is clearly demonstrated in chart 5.

It is too early to pass final judgment on the efficacy of type II serum. More investigation with a highly potent product is required before a fair verdict can be given. It is significant, nevertheless, that those who have worked extensively with type II serum are confident that it has a place in the treatment of type II pneumonia.

SUMMARY AND CONCLUSIONS

1. This report is based on a clinical and bacteriologic study of 1,000 cases of pneumococcus type II pneumonia from the wards of Bellevue Hospital.

2. The bacteriologic and clinical methods employed are described. During the last three years of the study, particular attention has been given to rapid methods of typing the sputum.

3. Pneumococcus type II pneumonia is considered from the standpoint of a specific disease entity. Like type I pneumonia, it runs a characteristic febrile course, usually terminating by crisis.

4. Twenty-three per cent of 4,310 cases of pneumococcus lobar pneumonia in adults were type II infections. Only 9 out of 329 cases of pneumonia in children were of type II origin.

5. Curves of the age distribution of type I and type II pneumonia show a higher incidence of type I up to the age of 30, and a slightly higher incidence of type II beyond that age. Curves of the seasonal distribution of the two types are almost identical.

6. The incidence of complications in the entire series as well as in the cases that came to autopsy is tabulated for both type I and type II pneumonia. Empyema occurs twice as frequently in type I, while endocarditis is found twice as often in type II. Meningitis has the same incidence in both types. Bacteremia is almost twice as prevalent in type II as in type I infections.

7. Type II pneumonia has a mortality rate of 48.8 per cent, almost twice that of the type I variety. The death rate in septic type II cases is extremely high, 87.5 per cent in the present series.

8. The experimental evidence in support of type II serum and its concentrate is presented. The immune serum contains antibodies which react against the type II organism, and it also regularly protects mice and other laboratory animals from type II infection. Felton's concentrated serum is shown to be from six to twenty times as high as unrefined serum in its content of antibodies and protective substance.

9. A definite clinical effect following the early administration of concentrated type II serum is often demonstrable. The course of the disease is usually milder and the blood more frequently remains sterile.

10. In a series of 252 cases of type II pneumonia treated with Felton's concentrated serum the mortality rate was 40.5 per cent as compared with a death rate of 45.8 per cent in 253 alternate controls. During the last year of our investigation, only early cases of type II pneumonia were included in the therapeutic study. Twenty-one treated cases had the benefit of intensive serotherapy with a death rate of only 14.3 per cent, against a rate of 65 per cent for twenty controls. The latter series, however, is too small to be convincing.

11. The results presented in this paper indicate that type II concentrated serum has definite though not striking clinical value. At the present time it is the most promising therapeutic agent available for the treatment of this disease.

THE MANAGEMENT OF BREAST CANCER *

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LOS ANGELES

There are two distinct surgical methods for carcinoma of the breast, one radical, the other conservative. The conservative operator advocates a simple removal of the offending neoplasm without any attempt to extirpate glands from the surrounding areas, while the radical performer encourages the obliteration of all questionable tissue, including muscles and fascia, and the cleaning out of all gland-bearing spaces contiguous to the cancer field.

Among radiation therapeutists there is a similar dual point of view. Many radiologists are inclined to the use of light exposures in order to obtain palliation without endangering normal structures around the field; others take the opposite point of view and maintain the necessity of destroying all cancer cells in the involved area as well as every aberrant cell contiguous to the affected field. As with surgery so also with radiology; the two groups can find ample grounds on which to found their separate claims.

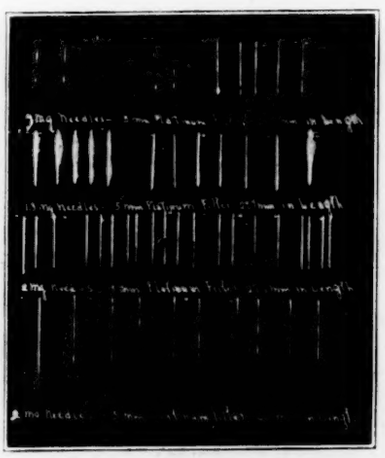

Fig. 1.—Types of radium filled platinum needles.

It was my privilege to present, at the London Congress in 1925, a paper on "The Treatment of Cancer of the Breast from the Viewpoint of a Radiologist," containing statistics of our own clinic, covering 550 patients observed over a sufficient length of time to warrant a report. In the intervening six years, many changes have occurred as related both to basic knowledge and to treatment methods. I have now modified and revised, to a considerable degree, my opinion of radium needles as then expressed.

My first success with radiation in a recurrent breast cancer was reported in 1901. Since then, upward of 3,000 patients with cancer of the breast have received treatment at our clinic. Obviously, it was impossible in earlier days to compile an accurate statistical study; therefore, only 550 patients were referred to in 1925.

Since then our recording and follow up methods have been greatly improved but, even yet, to obtain accurate and reliable cancer statistics is well nigh impossible. The ratio obtained in our 1925 report has not been materially increased in advanced cases; however, with the constantly increasing public knowledge regarding cancer, a greater number of patients are submitting to treatment at a sufficiently early stage to presage a definitely higher total of five-year clinical cures. Familiarity with the evolution of radiation standards will, no doubt, permit one to coincide with this conclusion.

* From the Soiland Clinic.
* Read before the Cancer Symposium at the Third International Congress of Radiology, Paris, July 30, 1931.

A short time ago, the surgical world was keenly interested when one of Britain's outstanding medical men announced having discontinued operative work on cancer of the breast in favor of radiation treatment; the latter, he stated, was giving him better results than surgery. Radiation therapy, as referred to here, is the interstitial implantation of platinum covered radium element needles, a method of treatment which offers all the benefit of close radiation without the disagreeable ulcerative reaction which accompanied earlier attempts to treat cancer below the surface with radium needles of low filter type.

This, then, is the method of radium therapy that I wish to present as the most promising and effective means at the present time. I desire to substantiate the preliminary report as given by that distinguished surgeon Lord Berkeley Moynihan, covering the original work done by Keynes, Handley, Cheatle, Cade and others.

For two years our clinic has employed the type of needles advocated by the authorities mentioned, and I am happy to state that the effects already observed are encouraging.

IMPLANTATION TECHNIC

Being privileged to take advantage of the pioneer work of the authorities quoted, as well as the observations of many other cancer workers throughout the world, and combining this with our own researches and conclusions, we have an approximately standard technic, particularly as related to preoperative breast cases.

With these patients the entire tumor mass is surrounded by implanted platinum covered needles, each

Fig. 2.—Needles containing radium implanted in breast, showing threads protruding.

needle containing from 1 to 2 mg. of radium and each of such a length as to be most suitable for the particular neoplasm submitted for dissolution. Great care is essential in order that the entire morbid area may come under an equalized crossfire of radium activity. The crux of the problem is to insure uniform radiation throughout the entire field involved. The work is accomplished with extreme mechanical and mathematical precision, the size and extent of each area to be treated being well determined, in order to insure the correct number of needles as well as the exact amount of radium to be applied.

With many cases one complete circle of implants is sufficient but others require a second ring of 3 cm. greater diameter and sometimes, with extensive involvements and large breasts, three encirclings are indicated.

Fig. 3. — Arrangement and location of needles.

In addition, all patients receiving interstitial radiation must have an implantation along the periphery of the breast, throughout the supraclavicular and infraclavicular spaces and the axillary area as well as the intercostal spaces and along the midaxillary line. These needles are left in situ for from seven to ten days, depending on the dosage prescribed. Usually from 75 to 80 mg. is required, although with some cases 100 mg. or even more may be necessary.

For this work, then, the use of fifty or more individual needles is entailed, all of which must be accurately placed and buried with consummate care in order that each and every individual cancer cell may be destroyed and that no outlying cell may remain beyond the reach of the radium barrage. Obviously, if one potential area of cancer-bearing tissue fails to be included, the effort will have been in vain.

The work is not easy. Experience shows that at least one hour is required to place and secure the needles properly in the average breast, and although this may be done under local anesthesia with certain patients, we favor a general anesthesia.

With nearly two years' work behind us, there is promise of much more positive results with implanted radium needles than we have heretofore attained through any other process of radiation therapy.

CLINICAL REACTIONS

Much care and patience must be exercised to see that embedded needles are at least 1 cm. distant from bone and periosteum. These tissues react negatively to prolonged irradiation, and, if already morbidly involved, should be destroyed by electrocoagulation or removed by the radio knife. Contrariwise, needles embedded in muscle, fascia, or lymphoid tissue may be permitted to remain throughout the full process of sterilization without any fear of lasting damage to contiguous normal structures.

As a usual thing, the average patient suffers but little inconvenience. Occasionally the axillary implantation has been found to cause some discomfort, particularly when much arm movement is indulged in.

It is essential also that patients be confined in bed during the required week or ten day period and it may be necessary with neurotic cases to offer a course of sedative remedies.

Usually there is but little radiation sickness, although it is well to alkalize the body and maintain a bland basic diet. Seldom is pain encountered, although an obstreperous patient may occasionally tax the clinician's patience and create difficulties which may require considerable finesse. As this is equally true in almost any therapeutic effort, it should not be considered as a deterrent for the treatment as advocated.

It is a simple matter to remove the needles, assuming that they have been properly secured to their protruding ligature with adhesive tape. Fortunately, the filtration rate of platinum prevents necrosis, and the little puncture wounds heal in a few days. The rapid melting away of malignant masses under this treatment is remarkable, and we have seen distended nodular breasts resume normal size and consistency with occasionally a return to lacteal function.

ECONOMICS

Let us now consider briefly the economic side of the problem.

Bearing in mind that the implantation of radium needles presents every aspect of a major surgical operation, the patient must be prepared with the care prescribed under the regulations of standard surgical technic and the radium embedded as required under the most rigid rules of aseptic surgery.

Fig. 4. — Arrangement and location of needles.

Appreciating the fact that the average neoplastic breast will have approximately $6,000 worth of radium tied up for a period of ten days, it is apparent that this type of treatment can be made available to only a limited number of sufferers. No individual radiologist could maintain sufficient radium needles to carry on a really extensive effort. It is extremely doubtful whether any hospital or institution is equipped, at the present time, to offer any broad service of this nature.

Therefore, until funds are available which will make possible an abundant investment in radium needles, this type of treatment presents itself as a serious economic problem. The present market quotation on radium shows no appreciable drop from the price which has been in effect for the past six or eight years; namely, $70 per milligram. To this must be added the cost of platinum and the highly skilled labor required for fabrication. These difficulties are worthy of serious thought when it is realized that no other method of applying radiant energy has secured results equal to those which have been attained through the direct action of embedded radium. Apparently, then, radium in the form mentioned must be obtained without regard to cost.

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TREATMENT OF ADDISON'S DISEASE WITH AN EXTRACT OF SUPRARENAL CORTEX (CORTIN) *

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Various kinds of organotherapy have been used in Addison's disease since the association of the suprarenals with that syndrome was pointed out by Addison in 1855. Kennicutt,[1] in 1897, reviewed the literature and reported that twenty-eight of forty-eight cases were improved by such therapy. In view of our present knowledge it is difficult to attribute the improvement in such a large proportion of cases to organotherapy. The remissions that may occur could account for the improvement in at least part of the cases. If improvement is very slow it may be independent of treatment. The best evidence of efficacy of organotherapy is the occurrence of relapse each time treatment is stopped.

Some success has been attributed to the use of whole suprarenal or of cortex by mouth together with epinephrine administered to the point of tolerance by rectum and subcutaneously.[2]

In October, 1927, Hartman, MacArthur and Hartman[3] described the first method for preparing an epinephrine-free, aqueous extract containing the vital hormone of the suprarenal cortex. The evidence that the hormone was present in this extract was the increased survival period of completely suprarenalectomized cats (twenty-one days as compared to six days for the controls). With such an extract it was possible to keep suprarenalectomized cats alive an average of twenty-eight days, as shown in a later report.[4]

Rogoff and Stewart[5] in October, 1927, reported increased survival of suprarenalectomized dogs treated with a saline extract of the suprarenal cortex. Their treated animals lived an average of 14.2 days, as compared to 9.6 days for the controls.[6] Since it was impossible to remove epinephrine by their method of extraction, the amount of hormone that could be injected was limited. The method of Hartman, MacArthur and Hartman permitted the injection of larger quantities of a more concentrated extract.

In March, 1930, Swingle and Pfiffner[7] reported results with a concentrated aqueous extract which kept suprarenalectomized cats alive indefinitely. In June,

* Aided by grants from the National Research Council and the Ella Sachs Plotz Foundation.

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2. Snell, A. M., and Rowntree, L. G.: Clinical Experience with Addison's Disease, Ann. Int. Med. **3**: 22 (July) 1929.
3. Hartman, F. A.; MacArthur, C. G., and Hartman, W. E.: A Substance Which Prolongs the Life of Adrenalectomized Cats, Proc. Soc. Exper. Biol. & Med. **25**: 69 (Oct.) 1927.
4. Hartman, F. A.; Brownell, K. A.; Hartman, W. E.; Dean, G. A., and MacArthur, C. G.: The Hormone of the Adrenal Cortex, Am. J. Physiol. **86**: 358 (Sept.) 1928.
5. Rogoff, J. M., and Stewart, G. N.: The Influence of Adrenal Extracts on the Survival Period of Adrenalectomized Dogs, Science **66**: 327 (Oct. 7) 1927.
6. Rogoff, J. M., and Stewart, G. N.: The Influence of Adrenal Extracts on the Survival Period of Adrenalectomized Dogs, Am. J. Physiol. **84**: 663 (April) 1928.
7. Swingle, W. W., and Pfiffner, J. J.: An Aqueous Extract of the Suprarenal Cortex Which Maintains the Life of Bilaterally Adrenalectomized Cats, Science **71**: 321 (March 21) 1930.

1930, we[8] reported a rather simple method for producing a concentrated extract with low epinephrine content which would keep suprarenalectomized cats alive indefinitely and which would revive suprarenalectomized cats that were in the last stages of insufficiency. July 8, 1930, we treated our first case (case 1) of Addison's disease with this preparation.[9] Since then we have treated six other cases, which are included in this study.

USE OF THE ERGOMETER TO DETERMINE THE DEGREE OF ASTHENIA

Asthenia being the outstanding symptom in Addison's disease, an objective test for the determination of the fatigue point is highly desirable. Subjective estimates are unreliable. The ergometer, while it has its limitations, furnishes the most applicable objective test. It can be used at all times except when the patient is extremely weak. The fatigue point is far more important than the dynamic power of the muscle, since the latter does not respond readily to changes in the condition of the patient. The usual type of ergometer, which employs the middle finger, was used to determine the degree of asthenia at various times during observation and treatment. It seems most satisfactory to use a weight at first which, when lifted once every two seconds, causes fatigue in about three minutes. A sufficient number of tests is done to establish a base level, and then the patient is tested every week or so. It is not difficult to obtain base levels of work on the ergometer in asthenic patients while they are in the hospital.

In the severe cases, cortical insufficiency seems to be practically complete and cortin must be furnished in relatively large amounts indefinitely. In the less severe cases probably there is an appreciable amount of active cortex, but its functional capacity is considerably below bodily requirements. Intensive treatment for a limited period may bring about sufficient improvement so that the extract may be discontinued for a time. Certain symptoms suggest the presence of suprarenal insufficiency. In the absence of an unequivocal test, it is possible that the use of cortin, properly controlled, may be of diagnostic value.

In clinical cases, we have used extracts of the suprarenal cortex alone because we are not sure that the methods of separating cortin from the toxic substances of the medulla are entirely efficacious. We have used concentrations of cortin varying from the product of 15 to 50 Gm. of fresh cortex per cubic centimeter. In order to make our dosages comparable, we give them in terms of fresh cortex. The yield of cortin has been lower in the extracts made in larger quantities, because the suprarenals were at least a week old when received from the abattoir. There have been no toxic or disagreeable effects from the use of the extract except when a slight local reaction occurred in two instances. It can be given intravenously or subcutaneously. One patient was injected for nearly eight months, four times daily, without untoward results.

REPORT OF CASES

CASE 1.—*History.*—A utility man, aged 24, was admitted to the Buffalo General Hospital, July 7, 1930. It appeared from his history that he considered himself well until April, 1930, when he had an attack of nausea and vomiting which lasted two days. He had another such attack in May. Since then he had become very weak and the vomiting had kept up. He had lost in weight from 170 to about 100 pounds (from 77 to 45 Kg.). On further questioning it was determined that he had experienced some fatigue at night after his day's work for about a year prior to the inception of his present illness, so that he did not care to leave his home at night. In 1928 he had scarlet fever and was ill about a month.

Physical Examination.—The patient seemed to be in extreme shock. His eyes were closed, he could not be aroused, and his legs seemed lifeless. His skin was diffusely tanned, especially over the face and arms, and there were many jet black freckles on his face, arms and chest. There was a small area of pigmentation on the mucous membrane of the gum over the upper left central incisor. His heart sounds were very distant. Systolic blood pressure was 50 and diastolic was 20. His legs twitched at times.

Laboratory Examination.—The urine was essentially normal. Chemical examination of the blood while the patient was fasting revealed sugar 82 mg. and urea 130 mg. per hundred cubic centimeters. The carbon dioxide capacity of the blood plasma was 27 mm. There were 21,600 leukocytes per cubic millimeter of blood, of which 76 per cent were polymorphonuclears.

Management and Course.—Artificial heat was supplied immediately. The patient was given repeatedly a 5 per cent solution of dextrose intravenously, and 1 cc. of 1:1,000 dilution of epinephrine chloride was administered subcutaneously every two hours. He did not appear to improve appreciably with this treatment. At the end of twenty-four hours he was given the extract of 3,000 Gm. of suprarenal cortex in fractional doses. The forcing of fluids was continued. His twitching gradually disappeared. His drowsiness continued, but he seemed less irritable and his mental response was better. After three more days of this treatment he began to eat and to read. July 16, another patient with Addison's disease was admitted, so that all the available cortin was divided between these two patients. July 19, the first patient began to lose interest in his surroundings, refused food, and vomited. He was then again given the extract of 3,000 Gm. of suprarenal cortex. July 20, he received the product of 4,800 Gm., and on the 21st, 2,400 Gm. He responded to treatment as before. Subsequently there were two other relapses due to reduction of the dose in order to determine his minimum requirement. With each relapse his blood urea value rose and the blood sugar dropped, but after improvement they returned to normal. Scaling of the skin, especially of the anterior abdominal wall, was found after each of the four relapses. His treatment was continued without interruption and by the end of seven months he was feeling much stronger. He could walk quite fast and could do eight times as much work on the ergometer as he could do originally. After he had been under treatment for 231 days, he developed a throat infection which was followed by bronchopneumonia. All the available cortin was given him. He died at the end of seven days.

Necropsy Report (by Dr. K. Terplan).[10]—The suprarenals showed extreme atrophy; each measured 4.5 by 1.4 cm.; the total weight of the two was 3.44 Gm.; they were ⅓ mm. in thickness. On the cut surface there were no normal markings. The parenchyma was grayish red. Histologic examination showed an absence of normal or regenerative cortical tissue except for one nodule, which was less than 1 mm. in diameter and which consisted of huge cortical cells containing lipoid but having degenerative changes in the cytoplasm. In the central portion of the suprarenals there were normally preserved medullary cells with chrome colored cytoplasm. In the outer portion there was in some places a complete absence of medullary substance. The cortex was largely made up of hyaline connective tissue.

CASE 2.—*History.*—A housewife, aged 41, was admitted to the Buffalo General Hospital, July 16, 1930. In 1925, areas of vitiligo first appeared. A year later she had an attack of nausea and vomiting, pain in the upper right quadrant and diarrhea. This was diagnosed as acute cholecystitis. In 1927 weakness appeared, so that finally she was unable to do any of her housework. She was restless and did not sleep well.

8. Hartman, F. A., and Brownell, Katherine A.: The Hormone of the Adrenal Cortex, Proc. Soc. Exper. Biol. & Med. **27**: 938 (June) 1930.
9. Hartman, F. A.; Aaron, A. H., and Culp, J. E.: The Use of Cortin in Addison's Disease, Endocrinology **14**: 438 (Nov.-Dec.) 1930.
10. Terplan, K., and Sanes, S.: Pathological Report of a Case of Addison's Disease Treated with Cortin, Endocrinology **16**: 69 (Jan.-Feb.) 1932.

Her skin gradually darkened. Her family physician found her systolic blood pressure to be 72 and made a diagnosis of Addison's disease. She remained in bed for a whole year with no improvement. In 1929 she was ill with pleurisy for five weeks. During the six weeks prior to admission she had many attacks of nausea and vomiting and had to remain in bed all the time. Also, she had considerable pain in her legs and in her stomach.

Physical Examination.—The patient showed extreme prostration, was vomiting frequently, and complained of pain in the stomach. Her skin showed extreme vitiligo. There was one small area of pigmentation at the base of the tongue. The systolic blood pressure was 60 and the diastolic, 48.

Laboratory Examination.—Her blood count showed a moderate secondary anemia without leukocytosis. Blood dextrose was 116 mg. and urea 108 mg. per hundred cubic centimeters.

Management and Course.—On admission the extract of 100 Gm. of suprarenal cortex was given every four hours. She became gradually worse and died on the third day after admission. (From our experience with other cases we believe that this patient could have been saved, had a sufficient amount of cortin been available.)

Necropsy Report (by Dr. A. J. Foord).—There was an extreme atrophy of both suprarenal glands, so that they, together with the surrounding tissue, had to be fixed in solution of formaldehyde. Serial sections were made. The right gland was about 3 mm. in thickness and showed some hyperplasia of the cortical cells. The left gland was completely atrophied. There was healed tuberculosis in both pulmonary apices, recurrent cholecystitis, and marked lymphoid infiltration of and hyperplasia of the thyroid gland.

CASE 3.—*History.*—A man, aged 38, a boilermaker, admitted to the Buffalo General Hospital, May 13, 1931, stated that he had been well up to June, 1930, when he had grip, which lasted two weeks, and that since that time he never regained his former strength. Six weeks later he had another similar attack. He worked until October 19, when he had to stop because of weakness which gradually increased and in December he was forced to go to bed. At that time he had nausea and vomiting. He remained in bed for three weeks, after which he began to get about. By April, 1931, he was able to walk from 600 to 800 yards. Pigmentation of his skin had been increasing since December, 1930. Many small jet black freckles had appeared on his arms, legs and face. He lost about 40 pounds (18 Kg.) from June, 1930, to the time he was admitted. He became irritable and had pains in his legs.

Physical Examination.—The patient was very poorly nourished and showed a diffused pigmentation of the skin of the entire body with darkening of the normally pigmented areas. There was pigmentation of the mucous membranes of the lips and of the inside of the cheeks. There were many jet black freckles. The rectal mucosa showed some pigmentation. The skin was generally very dry. His blood pressure was 80 systolic and 40 diastolic.

Laboratory Examination.—The urine showed albumin (from 1 plus to 2 plus) and the sediment usually contained many hyaline and granular casts. Red blood cells numbered 4,500,000; hemoglobin was 85 per cent; leukocytes were 14,000, 48 per cent of them being polymorphonuclears. A phenolsulphonphthalein kidney function test showed 16 per cent return of the dye in two hours; on subsequent examination, 29 per cent. Chemical examination of the blood with the patient fasting showed sugar, 67 mg., and urea, 33 mg. Gastric analysis showed the presence of free hydrochloric acid only after the administration of histamine. Basal metabolism was minus 17 per cent. The intradermal tuberculin test was positive. Roentgen examination of the suprarenal areas showed no evidence of calcification.

Management and Course.—On admission to the hospital the patient was very weak and had no appetite. While preliminary examinations were being made, he grew considerably worse, became very drowsy, vomited, and had incontinence of the bladder. During this time the urine showed an increasing amount of albumin and increasing numbers of casts. The blood urea increased to 90 mg. per hundred cubic centimeters. May 22, while the patient was in this state, the extract from 300 Gm. of suprarenal cortex daily was started in three divided doses. With this amount no improvement seemed evident, so that two days later the amount of cortin was doubled. He then became more alert, his appetite became better, and he took more interest in his surroundings. It was found necessary to increase the dosage of cortin up to the equivalent of 1,000 Gm. of suprarenal cortex a day. His appetite improved and he was able to be up and around the ward. However, he continued to lose weight. It was our belief that the dosage of cortin was inadequate, but more was not available. July 12, at 6 p. m., he complained of weakness which came on after a short walk in the ward. At 9 o'clock he was given orange juice and sugar. At 9:20 he stiffened out, all of his muscles went into spasm, and he became unconscious. His extremities were cold. His pulse was not obtainable and his heart sounds were inaudible. Respiration ceased for a time. He was given two intravenous injections of epinephrine chloride 1:1,000, 1 cc. each, and 60 cc. of a 50 per cent solution of dextrose intravenously. After this his pulse became palpable. At each prick of the needle his hands would go into clonic spasm and he would flex all four extremities. At 10 o'clock he was given the extract from 600 Gm. of suprarenal cortex subcutaneously and 1,500 cc. of a 5 per cent solution of dextrose in isotonic salt solution subcutaneously. At 11 o'clock he received 500 cc. of salt solution intravenously. At 11:30 the extract of 600 Gm. of suprarenal cortex was given subcutaneously. His general condition was now somewhat improved, although Cheyne-Stokes type of respiration was present. At 1:15 a. m. he received another subcutaneous injection of cortin consisting of 600 Gm. of suprarenal cortex, and 500 cc. of a 10 per cent solution of dextrose intravenously. His blood pressure was now 90 systolic and 50 diastolic. At 2:25 he received an intravenous injection of cortin, consisting of 600 Gm. of suprarenal cortex. At 3:15 the patient was resting quietly but became irritable and flexed his extremities when the sphygmomanometer cuff was blown up. At 4:35 there was considerable twitching of the muscles of the pectoral group and of the arm. At 6 o'clock he received another intravenous injection of cortin. Muscular twitchings and general irritability had now ceased. During the day he was given large quantities of a 5 per cent solution of dextrose subcutaneously. There was some twitching of the face and lips at times. He had periods when he appeared somewhat rational. July 14, he was becoming calm and he was drowsy a great deal of the time. The subcutaneous injections of cortin were continued. On the 15th, his appetite returned and he was irrational for only a short time. His blood urea dropped from 92 (July 11) to 47 mg. (July 17). From that time on he has shown gradual but definite improvement. His weight, which was 95 pounds (43 Kg.) on admission and 85 pounds (38.6 Kg.), July 6, reached 104 pounds (47 Kg.), October 12. He returned to his home the middle of October, where cortin was administered by a member of his family. When he came back to the hospital in ten days, as requested, it was found that he had gained 8 more pounds and felt very well. He was able to walk more than a mile at a time without fatigue, and his capacity on the ergometer was twice what it was at his first admission. His blood urea was 81 mg. per hundred cubic centimeters. There was the faintest trace of albumin in the urine and occasional granular and hyaline casts. The specific gravity of the urine was 1.018. His dose of cortin was the product of 1,200 Gm. of cortical tissue daily.

CASE 4.—*History.*—An unmarried woman, aged 38, first seen by one of us, Sept. 26, 1931, had observed pigmentation on her gums four years before. Later, black freckles appeared on her arms, legs and face. There were also, as time went on, distinctly darker areas appearing on her body. Eight months before, she was admitted to the hospital with a diagnosis of "acute cholecystitis and hyposuprarenalinism." Since that time she had had periods when it has been necessary for her to remain in bed for a few days because of weakness. She usually had vomiting with these attacks. In the intervals she felt better and was able to be around but she never returned to her former health. She had had distress in the stomach for several years. She felt chilly in a room that was warm enough for others. Fainting spells had occurred frequently, especially in the past few months. She experienced some breathlessness on exertion.

Her weight was 116 pounds (52.6 Kg.), which represented a loss of 60 pounds (27 Kg.) in a year.

Physical Examination.—The patient was quite restless. There was some evidence of dehydration. There were areas of pigmentation on the arms, elbows and face. There were black freckles on the arms, legs and face. There was diffuse tenderness of the whole abdomen but no muscular spasm. The blood pressure ranged between 94 and 104, systolic, and 68 and 74, diastolic. The pulse rate was between 90 and 100.

Laboratory Examination.—As this patient was out of the city, it was impossible to get complete laboratory data. The blood sugar was 70 and the nonprotein nitrogen was 51 mg. per hundred cubic centimeters.

Management and Course.—The patient was given the extract of 200 Gm. of suprarenal cortex three times a day, beginning September 26, at 2 a. m. Soon after the first injection she went to sleep and slept continuously for six hours. She had had no sleep for the three preceding nights. She took some breakfast, and there was no vomiting for the first time in two weeks. She drank water and ate during the day without vomiting. Since that time her improvement has continued, and she has eaten well. Her weight, October 12, was 128 pounds (58 Kg.) and, October 20, her blood pressure was 110 systolic and 78 diastolic. She has been about the house, and her pigmentation has decreased so that her relatives say it is nearly normal.

CASE 5.—*History.*—A housewife, aged 41, admitted to the Buffalo General Hospital, May 28, 1931, had been well up to September, 1930, except for occasional bilious and fainting attacks, which would appear if she injured herself. At that time she noticed weakness after exercise. This gradually became worse until March, 1931, when she became very weak. She had some twitchings of the legs so that she would have to get up and walk at night. She experienced tightness in the chest after walking a short distance. She had lost 30 pounds (13.6 Kg.) in the past two years. About March 1, it was noticed that her skin was becoming darker and about that time palpitation after exercise developed. She had considerable nausea and vomiting during April, 1931. She was restless and irritable and did not sleep well.

Physical Examination.—The patient weighed 96 pounds (43.5 Kg.). The skin was diffusely darkened. The nipples were very much pigmented. There were small areas of pigmentation in the mucous membrane of the mouth just inside the lip margins. The blood pressure was 90 systolic and 70 diastolic. The abdomen was normal.

Laboratory Examination.—The urine was normal. Red blood cells numbered 3,990,000; hemoglobin was 70 per cent; leukocytes numbered 5,600, 62 per cent of which were polymorphonuclears. Chemical examination of the blood, fasting, revealed sugar, 90 mg., and urea, 40 mg. per hundred cubic centimeters. Basal metabolism was minus 9 per cent.

Management and Course.—The patient received the extract from 600 Gm. of suprarenal cortex daily in three divided doses. In four days she felt stronger and could then do twice as much work on the ergometer as she could on admission. She slept much better and was not so "nervous" and irritable. The twitching in the legs and the tightness in her chest after exercise disappeared. After six days of treatment she could do four times as much work on the ergometer and was sleeping and eating normally. She left the hospital, June 16, continuing the extract of 400 Gm. of cortical substance daily.

July 9, she walked up two flights of stairs without difficulty for the first time since treatment had been instituted. The dose of cortical extract was then reduced to the product of 200 Gm. daily. At this time she returned home, 150 miles by train. There she began to feel much weaker, slept poorly, was irritable, and at times was despondent. The dosage of cortin was then doubled, and within forty-eight hours her condition was noticeably improved in that she slept better and acquired an improved sense of well being and was not so irritable. Her weight had now increased 7 pounds (3.2 Kg.). August 6, she did six times as much work with the ergometer as she did when first seen. Pigmentation was definitely diminished.

November 3, the patient wrote that she was able to carry out the ordinary activities of her daily life without difficulty.

CASE 6.—*History.*—A woman, aged 55, a clerk, admitted to the Buffalo General Hospital, Nov. 19, 1930, had been unable to do her routine work without noticeable fatigue since 1924. She was drowsy and dizzy, and had had fainting spells for many years. In 1926 she observed the appearance of brownish areas on her face, neck and back. Her appetite had been fair and there had been no nausea or distress in her stomach. She had lost some weight.

Physical Examination.—The patient was somewhat undernourished and her skin was considerably darkened, especially in areas about the face, neck and back. Her voice was husky and she was easily fatigued. The blood pressure was 90 systolic and 60 diastolic. The examination of the abdomen was negative.

Laboratory Examination.—The urine was normal. Red blood cells numbered 3,110,000; hemoglobin was 60 per cent; white blood cells numbered 7,500, 54 per cent of which were polymorphonuclears. Chemical examination of the blood revealed sugar, 88 mg.; urea, 22 mg. The basal metabolism was about minus 28 per cent on three determinations. The oral temperature had a subnormal range. There was no free hydrochloric acid in the stomach contents until histamine was given.

Management and Course.—The diagnosis seemed uncertain. The patient had received thyroid medication in the past with questionable benefit. She had not been taking thyroid recently. She remained at rest in the hospital for nine days, during which time her ability to work without fatigue was established with the ergometer. Cortical extract, 300 Gm., subcutaneously, was then given twice daily during eight of eleven days. The length of time she could work on the ergometer without fatigue lengthened gradually, so that thirteen days after the discontinuance of cortin she could do twenty-eight times as much work as before treatment was begun. Her basal metabolism during this time remained unchanged. She had no cortin for fifty days, but her ability to work remained between two and three times what it was before treatment. Thyroid medication, 0.13 Gm. daily, was then administered until the basal metabolism reached normal. After she had been taking thyroid one month her ability to work without fatigue increased to eight times what it was originally. Cortical extract, 600 Gm., was now given daily for nine days in addition to the thyroid medication. Four days after cortin was stopped she could do thirty-eight times as much work with the ergometer as originally.

She has received no medication since Aug. 1, 1931, but has continued to feel well. She has gained 2 pounds (0.9 Kg.) and is able to do her work. Her pigmentation seems to be less. October 12, her basal metabolism was minus 23 per cent. Her chief complaint at that time was that she was exceedingly sensitive to cold.

CASE 7.—*History.*—A woman, aged 41, a housewife, admitted to the Buffalo General Hospital, April 2, 1931, had noticed fatigue after a day of ordinary housework since the summer of 1930. This gradually increased so that before admission she found difficulty in carrying on her work. She had aches in the back and legs, especially when she walked up or down stairs. Very unpleasant nightmares had been present for the past two years. She was very easily irritated and disturbed. Her skin had become darker on her neck since 1921, and the pigmentation had spread to the chest and back. Her appetite had remained good and she had lost but little weight. She had no stomach trouble.

Physical Examination.—The patient was well nourished and did not appear especially ill. There was slight brownish pigmentation of the skin of the neck, chest and back, but none on the mucous membranes. Her blood pressure was 104 systolic and 80 diastolic. There was definite diminution in strength on squeezing the examiner's hands and extending the legs from a state of flexion against resistance.

Laboratory Examination.—The urine was normal. Red blood cells numbered 4,380,000; hemoglobin was 75 per cent; white blood cells numbered 9,900, of which 68 per cent were polymorphonuclears. Chemical examination of the blood showed dextrose, 84 mg.; urea, 24 mg. Basal metabolism was minus 12.7 per cent.

Management and Course.—Before treatment with cortin was begun the patient rested at home for fifteen days. There did not seem to be any improvement. The extract of 150 Gm. of suprarenal cortex was given twice daily. In three days she stated that she experienced less fatigue. At that time she could do 50 per cent more work with the ergometer than on admission. In six days she could climb stairs without fatigue, which she could not do previously. The pain in her back and legs and the nightmares disappeared. April 28, the work that she could do on the ergometer had increased 150 per cent. Cortical extract was then increased to double the original dose, now 600 Gm. daily. May 7, the daily dose was reduced to 300 Gm. May 29, it was discontinued altogether. She, however, continued to improve in every way. Two weeks after cortin was discontinued she was able to do ten times the work originally done with the ergometer. She felt better than she had in the past two years and was able to work about the farm and to drive her own car. When seen again, August 5, her symptoms were beginning to return—backache, irritability, weakness and aching in the legs. She had been through a severe emotional strain because of the death of a member of her family. August 20, she reported that she had been relieved of household duties and had remained in bed much of the time. We were not certain that there was not a psychic element in her case, so she was given two injections daily of isotonic salt solution. In eleven days she reported that her fatigue was somewhat better. September 1, she was given the extract of 75 Gm. of cortical substance twice daily. In three days, greater improvement was reported. She slept better and was not so irritable. The aching in the legs had subsided and fatigue on going up and down stairs had lessened decidedly. At that time she could do seven and one-half times as much work with the ergometer as when first seen.

COMMENT

Relapses; Recovery with Cortin.—The first symptoms that appear in a relapse are most likely to be anorexia, vomiting, epigastric discomfort and lethargy or irritability. There may be pains in the legs, back or abdomen. Insomnia and mental depression may follow. If the relapse is serious the blood pressure falls, the blood urea rises and the blood sugar may drop. Although the changes may seem to be coming on gradually, collapse and coma may occur in a few hours. Once there is evidence of an increasing cortical insufficiency, treatment should be instituted speedily. In order to be on the safe side, large amounts of cortin should be injected, because it often requires much more of this hormone to pull the patient through a relapse than it does to carry him at a level of comparative health, once that is attained. Two patients came out of coma and one recovered from collapse three times following the use of cortin.

As a patient becomes worse, his condition may change so rapidly that some of the stages may not appear or may be overlooked. During the process of recovery, these stages occur in the reverse order and develop more gradually, so that they may be more easily studied. Coma may alternate with periods of restlessness and irritability. During this stage there may be muscular twitching and irregular breathing. As consciousness returns, restlessness, twitching and irritability may increase and there may be vomiting. Pains in the abdomen, legs or back may appear; the patient is disoriented, may be mentally irritable and fails to cooperate. He passes through a period of depression and listlessness. His judgment is poor and insomnia may develop. As improvement progresses, the twitching disappears and restlessness is replaced by calm; the patient is less irritable, becomes free from pain and shows proper orientation. At first he may sleep a great deal. Within three days after treatment is instituted, he usually reaches the stage of recovery, which is characterized by mental alertness, a decrease of asthenia and a return of appetite. The patient soon recovers his sense of well being; good judgment returns and he is cooperative. His sleep becomes restful, so that he is awake about the same proportion of time as a normal individual. Cortical extract seems to be very beneficial in bringing restful sleep, especially in the milder cases. We group tentatively these changes into four phases—coma, irritability, calm and recovery. The time required to pass through these stages to recovery varies. It probably depends on the dosage of cortin and on the condition of the patient when the relapse occurs. It has been possible to bring about rapid recovery in suprarenalectomized cats that had been allowed to pass into the last stage of suprarenal insufficiency before death; one was prostrate, dyspneic and had marked muscular twitching in different parts of the body. The injection of cortin, intraperitoneally, caused the twitching and dyspnea to disappear within an hour. In seventy minutes she sat up and in an hour and forty minutes she was eating. Other cats that have passed more slowly into this stage of extreme suprarenal insufficiency have required a longer period, sometimes even days, for recovery. Also, some have required larger quantities of cortin to bring them out of coma. Occasionally, however, animals that have been allowed to pass into the last stages of prostration did not recover when treated with large amounts of potent extract. This leads us to believe that there are stages beyond which one dares not allow the patient to go without instituting treatment. The signs and symptoms in relapse and recovery are similar in animals and in man.

Gastro-Intestinal Symptoms.—Gastro-intestinal symptoms which were confined to capricious appetite or epigastric discomfort in the mild cases developed into marked anorexia with nausea and persistent vomiting in severe cases, particularly at the time of the crisis. Following the use of cortin, response to treatment was evidenced by a return of or an increase in appetite; and there was a prompt cessation of the nausea and vomiting, usually within twenty-four hours.

Asthenia and Blood Pressure.—In severe cases, although there may be prompt recovery to a certain level of fatigue resistance, it may be weeks before further increased fatigue resistance is shown either subjectively or with the ergometer.

In mild cases treatment has been followed by improvement in the ergometric test within a few days. Sometimes this is shown by the test before the patient realizes that he is definitely stronger. This is soon reflected, however, in his increased ability to carry on the affairs of daily life.

The improvement in strength is not accompanied by an appreciable change in the blood pressure. In the majority of these cases the systolic blood pressure does not elevate above from 100 to 110, and the only striking elevations in blood pressure were those shown following relapses, when a systolic pressure, which had fallen to 60 mm. or less, would return to the neighborhood of 100 mm. after several days. Case 3 is an exception, the systolic pressure not having risen much above 85 mm. The ergometric response was appreciable in all the cases and very marked in case 6.

Skin.—Pigmentation: There has been a decrease in the pigmentation in four of our cases after the use of cortin. In three this has been quite decided. On the other hand patient 1, who was kept alive with cortin

for nearly eight months, was becoming darker during the last few months in spite of striking improvement in other ways. These changes have been determined by the use of a color dictionary.

Desquamation: After recovery from each relapse in our severe cases there has been desquamation over the body but especially on the anterior abdominal wall and the forehead. No effect on the hair was observed. It is interesting to note that suprarenalectomized cats may show skin changes. A freshly shaven area in a white cat shows a dirty gray and poorly nourished skin; the hair falls out easily or can be pulled out in masses. A normal cat, however, shows instead a pink healthy skin with tight hair. Sufficient cortin administered to suprarenalectomized animals brings back the normal qualities of the skin, and the hair again becomes fixed.

Temperature Regulation and Metabolism.—All of our cases have shown a subnormal temperature before and after treatment except for an occasional rise due to intravenous medication or to infection. During relapses, patients complain of cold extremities; this is probably due to faulty circulation as well as to lowered heat production. Individuals with suprarenal insufficiency are more susceptible to cold and therefore must be carefully protected even from moderate exposure. This inability to resist cold is due to lowered heat production. The basal metabolism of our patients has been below normal, though not strikingly so. Following suprarenalectomy, the metabolism of rats also falls (minus 10 to 20 per cent). On exposure to cold such animals may increase their heat production at first but the response soon falls far below that of normal animals.[11] As a result, the temperature falls and the animal dies if the exposure is prolonged. If they are injected with an adequate amount of cortin, the resistance to cold of suprarenalectomized animals is increased by enabling them to produce more heat; thus they stand exposure almost as well as normal animals. The metabolism of patients with suprarenal insufficiency has not been brought to normal by treatment possibly because the dosage was insufficient. Judging from the amount necessary to produce such a response in animals, it would be necessary to use from ten to thirty times as much cortin as we have used in the most serious cases of Addison's disease. However, there is some evidence that small animals require proportionately larger amounts of cortin.

Patients with marked suprarenal insufficiency have a lowered resistance to heat. Patient 1, when in excellent condition, was allowed to sit in the winter sunshine while he was tested with the ergometer. At the end of the test, which he had accomplished many times before without general fatigue, he felt so tired that he asked to lie down. Another case of Addison's disease not included in this report was found to show a low resistance to heat.

Weight.—All of our patients who have responded to treatment have shown a gain in weight. In the severe cases, this gain has been very much delayed. A gain in weight is undoubtedly a good prognostic sign and in the severe cases a failure to gain is an indication for increasing the dosage of cortin.

Laboratory Observations.—Cases of any severity commonly show an increase in blood urea, which usually varies in direct proportion to the patient's state. In a crisis the urea may rise, and in one of our cases it was well over 100 mg. per hundred cubic centimeters of blood. When sufficient amounts of cortin were given, the urea was reduced to normal in all cases save one. In some patients this response has been prompt, but in others it has been delayed and has not paralleled clinical improvement. When insufficient cortin was given, the normal blood urea was not reached. The severer cases showed lowered blood dextrose, which usually rose after the use of cortin. The severe cases showed a mild degree of secondary anemia, which improved under treatment. Abnormal urinary manifestations were recorded only during a relapse when there was a tendency for fairly large quantities of albumin and many casts to be present. No glycosuria was noted, despite the administration of considerable quantities of dextrose by various avenues during certain stages of treatment.

Dosage of Cortin.—The requirements of different patients for cortin vary over a wide range, depending no doubt on the degree of suprarenal insufficiency and also on individual variation. It has been found in animals with complete suprarenalectomy that the amount of cortin required to keep them in good condition varies considerably. This variation exists even under optimum conditions, but with infections, trauma and exercise much more cortin is needed.[12] When the requirements are not great, the doses not only are small but need not be given frequently. As the patient's demands for cortin increase, the dosages must be stepped up both in quantity and in frequency, as is necessary, for example, in infections or in trauma. This obtains in animals and seems to be true in man. The daily total requirements both in man and in animals seem to be less if the dosage is frequent. For instance, in case 1 the product of 1,200 Gm. of cortex distributed in four doses was more effective than that from 1,800 Gm. given in three doses. If our patients become worse we always increase the frequency of the dosage.

Rowntree, Greene, Swingle and Pfiffner[13] have used an extract of the suprarenal cortex. Judging from their reports, their results have been similar to our own. Ball and Lansbury[14] have reported another case treated with cortical extract. Simpson[15] has treated five cases. Patients not under our control have been treated by an extract prepared in our laboratory. Fuller Albright and P. C. Baird administered this extract in three cases of Addison's disease in the Massachusetts General Hospital and Allan T. Kenyon in one case of Addison's disease in the Billings Memorial Hospital at Chicago. Their results confirm our own.

CONCLUSIONS

Of seven cases treated with cortin, three represented severe stages of Addison's disease and four others presented less severe aspects of the syndrome.

Conclusive evidence has been furnished that an extract of the suprarenal cortex prepared by the ether-alcohol method is effective in alleviating the symptoms of Addison's disease.

11. Hartman, F. A.; Brownell, K. A., and Crosby, A. A.: The Relation of Cortin to the Maintenance of Body Temperature, Am. J. Physiol. **98**: 674 (Nov.) 1931.

12. Hartman, F. A.; Griffith, F. R., Jr., and Hartman, W. E.: Observations upon Adrenalectomized Cats Treated with the Cortical Hormone, Am. J. Physiol. **86**: 360 (Sept.) 1928. Hartman, F. A.; Brownell, K. A., and Hartman, W. E.: A Further Study of the Hormone of the Adrenal Cortex, Am. J. Physiol. **95**: 670 (Dec.) 1930.

13. Rowntree, L. G.; Greene, C. H.; Swingle, W. W., and Pfiffner, J. J.: Addison's Disease: Experiences in Treatment with Various Suprarenal Preparations, J. A. M. A. **96**: 231 (Jan. 24) 1931.

14. Ball, R. G., and Lansbury, John: The Treatment of a Case of Addison's Disease with the Cortical Hormone of Swingle and Pfiffner, Canad. M. A. J. **24**: 695 (May) 1931.

15. Simpson, S. L.: The Effect of Extract of the Suprarenal Cortex in Addison's Disease, J. Physiol. **72**: 4P (June 6) 1931.

THE MIGRATION, FOR TREATMENT, OF PATIENTS WITH GONORRHEA OR SYPHILIS

COMPARISON WITH THAT OF PATIENTS WITH TUBERCULOSIS IN MASSACHUSETTS IN 1930 *

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Many opinions have been expressed, founded largely on impression, as to the extent to which patients leave their home towns for treatment of gonorrhea or syphilis, and as to why and to what extent they choose between physicians and clinics. The desire for secrecy, the scarcity of specialists in the smaller communities, the high cost of adequate treatment, the availability of clinics and other reasons are advanced in behalf of the various opinions. Actual data to support these impressions are lacking.

The Massachusetts Department of Public Health recently modified its system of reporting gonorrhea and syphilis. As one result of this change it has been possible to study some of these obscure matters and to arrive at some conclusions of qualitative, if not quantitative, value.

Unfortunately, since the new system went into effect on Jan. 1, 1930, only some 6,200 cases of gonorrhea and 3,500 cases of syphilis, reported by clinics and physicians in 1930, have been available for study. However, the analysis of even this relatively small number of cases has greatly strengthened some of our former impressions and has severely shaken others. At least there is now some groundwork for further investigation.

Preliminary study [1] indicated that the combined migration for the two diseases was more than a quarter of the total cases reported and varied inversely as the size of the community, from 70 per cent in the smaller towns to less than 5 per cent in the largest cities. This variation did not appear in the twenty-one cities and towns in the Boston Metropolitan Area, in which nearly three fourths of the patients migrated (except from Boston), regardless of the size of the community.

TABLE 1.—*Distribution of Population and Reported Case Rates in Massachusetts, 1930*

Size of Community	No. of Communities	Population*	Gonorrhea Cases	Gonorrhea Rate†	Syphilis Cases	Syphilis Rate†	Per Cent of Total Population	Per Cent of Total Gonorrhea	Per Cent of Total Syphilis
Under 20,000	314	1,196,101	944	78.9	509	42.6	28.1	13.5	12.1
20,000-50,000	25	823,494	1,001	121.7	470	57.2	19.4	14.4	11.2
50,000-100,000	7	461,845	481	104.2	309	66.9	10.9	6.9	7.4
100,000-over	8‡	992,178	1,602	161.5	966	97.3	23.3	22.9	23.0
Boston	1	781,266	2,647	339.0	1,819	233.0	18.3	38.0	43.3
Not stated	...	.....	299	.....	124	.....	....	4.3	3.0
State.....	355	4,254,884	6,974	163.9	4,197	98.8	100.0	100.0	100.0

* Population as of July 1, 1930.
† Per 100,000 population. Includes patients in institutions.
‡ Lowell included: population, 99,733.

Further study has disclosed significant differences between the migration of patients with gonorrhea and of those with syphilis. Migration of the two sexes has been compared and also that in those communities which have or are near clinics with those which are far from clinics. The attraction which Boston has as a medical center is also studied, as it appears to have a large influence on the direction of the migration.

Those cases which were reported from penal institutions, mental disease hospitals, and the like, are not included in this study. Inmates of these institutions have no freedom of motion. A study of migration must take into account the opportunity which the patient may have for choosing between the various treatment resources.

GENERAL DATA

Table 1 presents certain pertinent information concerning the distribution of the population of Massachusetts and the reported rates for gonorrhea and syphilis. The increase in rates with the increase in the size of the community and the high rates and the percentage of the total cases in Boston should be noted.

There are approximately 5,800 physicians practicing in the state. Tables 2, 3 and 4 will orient the reader somewhat as to the distribution of these physicians, the extent to which they report cases and the availability of "specialists." The smaller the community, the greater is the percentage of physicians reporting gonorrhea, while the opposite is true of syphilis.

TABLE 2.—*Distribution of 5,829 Physicians: Reporting of Cases by Physicians*

Size of Community	Per Cent of Population	Per Cent of Physicians	Per Cent of Those in State Who Reported Gonorrhea	Per Cent of Those in State Who Reported Syphilis	Per Cent of Local Physicians Reporting Gonorrhea	Per Cent of Local Physicians Reporting Syphilis
Under 20,000*.....	28.1	18.5	22.8	12.2	18.8	5.4
20,000-50,000.....	19.4	14.9	18.2	14.5	18.6	8.0
50,000-100,000.....	10.9	8.1	7.2	7.1	13.4	6.9
100,000-over.....	23.3	21.9	20.2	24.9	14.1	9.3
Boston.....	18.3	36.6	31.6	41.3	13.1	9.2
State.....	100.0	100.0	100.0	100.0	15.2	8.1

* Ninety-eight towns under 20,000 population do not, according to our records, have a resident physician.

Data now being collected for future study seem to indicate that between 50 and 60 per cent of the physicians in the state treat gonorrhea and that between 40 and 50 per cent treat syphilis. By far the majority of these treat only as occasion demands, less than 2 per cent classifying themselves as "specialists." Apparently, then, less than a third of those treating gonorrhea and less than a fifth of those treating syphilis report their cases. It is known that not all their cases are reported even by those who do report. (Among 361 physicians who received arsenicals from the department in 1930, only 48 per cent reported cases of syphilis.)

There are twenty-nine public clinics in Massachusetts at which patients may be treated for either gonorrhea or syphilis. Eleven of these are located in Boston, four others in the Boston Metropolitan Health District; [2] and fourteen in twelve of the larger cities of the state. Not one of these cities is of less than 40,000 population (Brockton, Fall River, Fitchburg, Haverhill, Holyoke, Lawrence, Lowell, Lynn, New Bedford, Pittsfield, Springfield and Worcester). Large areas of the state are out of reach of clinics, but the total population of these areas is relatively small. These twenty-nine clinics are available to 2,152,000 people in the cities in which they are located comprising 50 per cent of the population of the state. An additional 1,046,000 people are residents of eighty-one other communities immediately adjacent to these clinic cities. Therefore, at least 75

* From the Massachusetts Department of Public Health.

1. Nelson, N. A., and Scamman, C. L.: Gonorrhea and Syphilis in Massachusetts in 1930, New England J. Med. **204**: 637 (March 26) 1931.

2. State Health District No. 2, consisting of Arlington, Belmont, Boston, Brookline, Cambridge, Chelsea, Dedham, Everett, Malden, Medford, Milton, Needham, Newton, Quincy, Revere, Somerville, Waltham, Watertown, Wellesley, Weston and Winthrop.

per cent of the population of the state has clinic service almost directly at hand. The remainder, largely residents of small towns, have low reported rates of either disease, so that it is probable that more than 75 per cent of the infected population has clinic service available.

TABLE 3.—*Physicians in Boston and in the Health District of Metropolitan Boston* [2]

	Per Cent of Population of State	Per Cent of Physicians of State	Per Cent of Those Physicians Reporting		Per Cent of Those Cases Reported by Physicians	
			Gonorrhea	Syphilis	Gonorrhea	Syphilis
Boston	18	37	32	41	30	30
Boston Health Area	39	52	50	55	51	51
Remainder of state	61	48	50	45	49	49

Examination of clinic records reveals that, with the exception of two or three of the smaller clinics, practically all clinic cases are reported. Consequently, in drawing conclusions it must be remembered that less than a third of the cases seen by physicians are reported, while most of the clinic cases are reported.

THE MIGRATION OF PATIENTS WITH GONORRHEA

Table 5 gives the percentage of migration from communities of different sizes, the percentage of cases reported by local physicians and clinics, and the total percentage of cases reported by physicians and by clinics, whether local or foreign.

It is surprising to discover that nearly 45 per cent of the reported cases are reported by local physicians, no matter how small or how large the community. This is interesting in view of the often repeated assertion that patients in small towns prefer the security

TABLE 4.—*Distribution of Reported Cases Among the Physicians Reporting*

(3,749 Cases of Gonorrhea Reported by 886 Physicians)

49.3% reported by 10% of physicians reporting (10 to 89 cases each)
70.3% reported by 25% of physicians reporting (5 to 89 cases each)
86.3% reported by 50% of physicians reporting (3 to 89 cases each)

(1,131 Cases of Syphilis Reported by 474 Physicians

37.1% reported by 10% of physicians reporting (5 to 38 cases each)
58.0% reported by 25% of physicians reporting (3 to 38 cases each)
78.9% reported by 50% of physicians reporting (2 to 38 cases each)

of distant physicians' offices, away from the eyes of inquisitive neighbors, and that clinics in the larger cities are putting the physician "next door" out of business.

Even among the migrating patients, more went to physicians than to clinics from communities of all sizes.

It does appear, at first glance, that more patients are treated by clinics than by physicians as the size of the community (and, therefore, the availability of a clinic) increases. We are of the opinion that this choice of clinic in preference to physician is more apparent than real and offer first an hypothesis and then evidence which seems to support it. The smaller communities have no clinics and are often distant from clinics. There must be a point at which the cost of transportation to a clinic becomes equal to or passes the cost of treatment with a physician. Nor can patients who cannot afford a physician afford to travel to the nearest clinic. Consequently they go without medical care. As only those patients who can afford a physician get medical care, only cases seen by a physician are reported. If this is true, the reported rates of gonorrhea from those communities distant from clinics should be appreciably lower than the reported rates for communities of the same size which have, or are located nearer to, clinics. This we find to be, very strikingly, the case (table 6).

Further, clinics report most of their cases, but physicians do not. Therefore the distribution of cases between clinic and physician in clinic cities is, on the face of reports, disproportionate in the opposite direction. In the small communities, the proportion of clinic cases is low because the clinic type of case gets no treatment because travel costs as much as the physician he cannot afford; on the other hand, the proportion of clinic cases is high in clinic cities because clinics do, and physicians do not, report most of their cases.

Certainly, the more directly available a good clinic, the greater will be the temptation of those who are only in fair economic condition to go to the clinic. But

TABLE 5.—*Migration of Patients with Gonorrhea (Per Cent of Total)*

Size of Community	Total Cases	Migrated to			Treated Locally			Total Reported by	
		M.D.	Clinic	Total	M.D.	Clinic	Total	M.D.	Clinic
Under 20,000	884	38.7	17.2	55.9	44.1	0.0	44.1	82.8	17.2
20,000-50,000	949	25.0	21.8	46.8	47.4	5.8	53.2	72.4	27.6
50,000-100,000	456	27.6	18.4	47.0	37.1	16.9	53.0	64.7	35.3
100,000-over	1,510	12.2	9.6	21.8	48.1	30.1	78.2	60.3	39.7
Boston	2,482	2.6	0.0	2.6	42.7	54.7	97.4	45.3	54.7
State	6,281	15.0	9.4	24.6	44.5	30.9	75.4	59.7	40.3

this temptation is not as effective as the complaints of many physicians would make it appear. It seems, rather, that when clinics are not available the greater part of the "clinic" population goes without treatment.

Boston seems to enjoy a position by itself. Although the proportion of cases reported by Boston clinics is too high because of failure of physicians to report, the case rates are all out of proportion to those in other cities of more than 100,000 population. The fact that

TABLE 6.—*Comparison of Communities with, or Near, Clinics with Those Distant from Clinics*

	Population	Reported Rate Gonorrhea	Per Cent Treated by Physician	Per Cent Treated by Clinic
Communities of from 10,000 to 20,000 population that have no clinics				
Near Boston clinics	71,188	102.5	75.3	24.7
Near other clinics	188,391	97.0	74.3	25.7
Far from clinics	180,517	69.7*	99.2*	0.8*
Communities of from 20,000 to 50,000 population				
Clinic cities	139,046	136.7	69.5	30.5
No clinic but near Boston	311,590	148.2	67.1	32.9
Far from clinic	148,957	52.3*	85.9*	14.1*
Communities of all sizes in the Boston Health District (except Boston)				
Under 20,000	74,541	100.7	76.0	24.0
20,000-50,000	311,590	148.3	67.1	32.9
50,000-100,000	257,130	102.8	65.9	34.1
100,000-over	217,492	182.6	60.1	32.9

* Note the low rates and the low clinic population.

Boston also has a higher proportion of physicians and clinics than the other communities cannot be the reason, because that would effect only migration into Boston for treatment. There are highly competent physicians and excellent clinics in other cities with lower reported rates.

The attraction of Boston as a medical center is quite remarkable, as shown in the accompanying maps.

Boston physicians see many more of these immigrating patients than do Boston clinics, for although reports indicate an equal distribution, it must be remembered that physicians report much less than half their cases (table 7).

Even clinic cities, of 50,000 and 100,000 population or more, in or close to the Boston Metropolitan Area

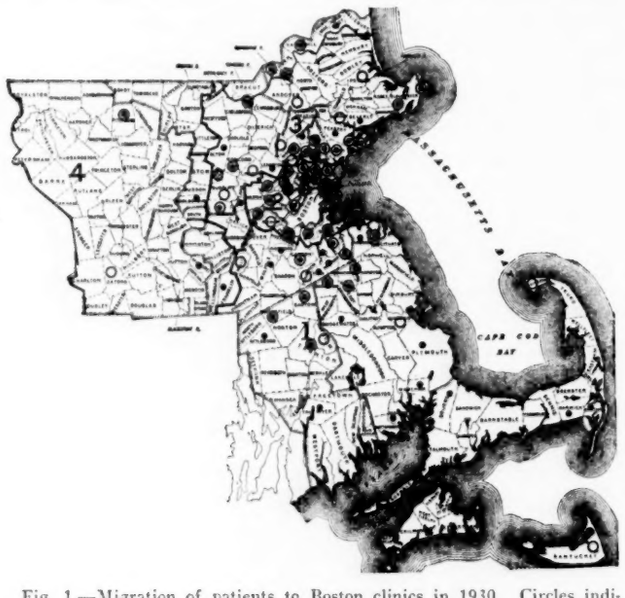

Fig. 1.—Migration of patients to Boston clinics in 1930. Circles indicate gonorrhea (467 cases from sixty-one communities); dots indicate syphilis (400 cases from seventy-six communities). One case of gonorrhea from the western part of the state is not shown.

feel this attraction, patients migrating from them to physicians and clinics in Boston (table 8). The double temptation of local and Boston clinics has not greatly increased the proportion of clinic cases over that in distant clinic cities or in nonclinic cities near Boston (table 6).

The twenty communities in the Boston Health District provided 80.1 per cent of the patients with gonor-

TABLE 7.—*Migration to Boston Clinics and Physicians Compared with Remainder of State*

Reported by	Cases of Gonorrhea	Per Cent of Total Migration	Number of Communities
Boston clinics	467	30.3	61
Boston physicians	459	29.8	65
Other clinics (14 cities)	122	7.9	57
Other physicians (95 cities)	495	32.0	158

rhea migrating to Boston clinics and 76.7 per cent of those migrating to Boston physicians.

Very little difference is shown between the migration of male and female patients (23.9 per cent male and 26.9 per cent female), but 10 per cent more of the females than of the males were reported by clinics. Clinics do not provide more secrecy than the physician's office, so that some other reason must be found to explain this apparent greater "preference" for clinics. It may be partly economic, the incomes of working women probably being less than those of men; and it may be due partly to better diagnostic effort in the clinic than in the physician's office. Evidence in support of the latter factor is available:

The ratio of total male to female reported cases is 3.39 to 1. The ratio of male to female cases reported by clinics is 2.55 to 1. That for cases reported by physicians is 4.23 to 1. The common acceptance by physicians of a single negative smear as proof of freedom from infection accounts for much of their failure to make the diagnosis. Male gonorrhea is much more quickly suspected and diagnosed clinically.

THE MIGRATION OF PATIENTS WITH SYPHILIS

Table 9 (to be compared with table 5) offers striking evidence of the difference between gonorrhea and syphilis as medical and economic problems.

Strangely, the proportion of total migration for syphilis (24.9 per cent) is almost exactly the same as that for gonorrhea (24.6 per cent), but it is much higher for syphilis in the two groups of smaller com-

TABLE 8.—*Migration of Patients with Gonorrhea from Clinic Cities Near Boston* *

Migration to			Treated Locally by			Treated by	
M.D.	Clinic	Total	M.D.	Clinic	Total	M.D.	Clinic
31.9	22.8	54.7	30.8	14.5	45.3	62.7†	37.3†

* Quincy, Newton, Lynn, Cambridge: 532 cases.
† Note agreement with clinic or near clinic cities, table 6.

munities. More patients migrate to clinics than to physicians; the proportion of cases reported by local physicians is half that for gonorrhea, and the total cases reported by clinics is more than twice that reported by physicians, local and foreign.

Probably no single factor nor easily evaluated combination of factors can account for this so different situation with syphilis. Among those to be considered are the following:

1. Fewer physicians treat syphilis than treat gonorrhea, and patients in the smaller communities must go to those cities where physicians who treat syphilis are to be found.

Fig. 2.—Migration of patients to Boston physicians in 1930. Circles indicate gonorrhea (459 cases from sixty-five communities); dots indicate syphilis (212 cases from sixty-four communities). Two cases of gonorrhea and three of syphilis from the western part of the state are not shown.

2. In the larger cities, where physicians who treat syphilis and where clinics are available, patients migrate less because they hesitate to add the cost of travel to the already high cost of treatment. Thus increased, unavoidable migration in the small community is balanced by decreased migration in the larger cities.

3. The cost of treating syphilis and the time required for cure is many times that for gonorrhea. Patients who could have afforded treatment by a physician for gonorrhea cannot afford it for syphilis and migrate to clinics, the cost of transportation being less than the physician's fees.

4. With syphilis, considered to be far more serious than gonorrhea, the patient is more anxious to have expert treatment. Physicians who specialize in the treatment of syphilis are rare outside the larger cities. When the patient has paid his fare to the distant city, he cannot so often afford a physician and goes to a clinic.

5. Syphilis is more likely to involve more members of a family than is gonorrhea and requires more expensive treatment for a longer time, so that the total cost of family medical care is very great. Also, since two thirds of the cases of syphilis that come to medical care are in the late stages, complications are frequent (neurosyphilis, cardiovascular disease, eye involvement, surgical complications). These require even greater specialization, which is proportionately more expensive. Consequently the patient turns to the clinic.

Certainly, however, as with gonorrhea, some of this "preference" for clinics is more apparent than real, for clinics report their cases and many physicians do not.

TABLE 9.—*Migration of Patients with Syphilis (Percentage of Total)*

Size of Community	Total Cases	Migrated to			Treated Locally by			Total Reported by	
		M.D.	Clinic	Total	M.D.	Clinic	Total	M.D.	Clinic
Under 20,000	416	29.6	52.9	82.5	17.5	0.0	17.5	47.1	52.9
20,000-50,000	392	23.5	41.3	64.8	24.7	10.5	35.2	48.2	51.8
50,000-100,000	265	18.5	25.3	43.8	18.9	37.3	56.2	37.3	62.7
100,000-over	836	7.1	13.1	20.2	29.1	50.7	79.8	36.2	53.8
Boston	1,662	0.5	0.0	0.5	20.2	79.3	99.5	20.7	79.3
State	3,571	9.3	15.6	24.9	22.4	52.7	75.1	31.7	68.3

Availability of a clinic has much the same effect on the reported rate of syphilis as it has on that for gonorrhea (table 10, to be compared with table 6). The figures being smaller, there is more statistical error in table 10 than in table 6. But the rates in communities distant from clinics is still so low as to be significant.

The attraction of Boston as a medical center is even more marked than it is for gonorrhea. Boston clinics report nearly twice as many out of town cases as Boston physicians do, but it must again be remembered that physicians often fail to report (table 11, to be compared with table 7).

Clinic cities in or close to the Boston area feel this attraction as they do in the case of gonorrhea (table 12, to be compared with table 8).

The twenty communities in the Boston Health District provided 73.8 per cent of the patients with syphilis migrating to Boston clinics and 65.1 per cent of those migrating to Boston physicians.

Less difference is noted between the migration of the sexes than was noted for gonorrhea (24.3 per cent of males and 25.9 per cent of females). Also, 2 per cent instead of 10 per cent more of the females than of the males were reported by clinics. That the failure of physicians to diagnose female gonorrhea accounts for the difference between the sexes in that disease seems more evident on examining the evidence for syphilis. The ratio of total male to female cases reported is 1.43 to 1. The ratio of male to female cases reported by clinics is 1.39 to 1. That for cases reported by physicians is 1.55 to 1. The Wassermann test is equally available for confirmation of diagnosis of syphilis in the two sexes. There is no sufficiently certain labora-

TABLE 10.—*Comparison of Communities with or Near Clinics with Those Distant from Clinics*

	Population	Reported Rate Syphilis	Per Cent Treated by Physician	Per Cent Treated by Clinic
Communities of from 10,000 to 20,000 population that have no clinics				
Near Boston clinics	71,188	75.3	36.1	63.9
Near other clinics	188,591	52.5	51.5	48.5
Far from clinics	180,517	22.7*	63.4*	36.6*
Communities of from 20,000 to 50,000 population				
Clinic cities	139,046	52.5	39.7	60.3
No clinic, but near Boston	311,590	65.8	49.1	58.1
Far from clinic	148,957	26.2*	74.3*	25.7*
Communities of all sizes in the Boston Health District (except Boston)				
Under 20,000	74,541	48.3	36.1	63.9
20,000-50,000	311,590	65.8	41.9	58.1
50,000-100,000	257,130	51.4	49.2	50.8
100,000 over	217,492	83.6	38.5	61.5

* Note the low rates and the low clinic population.

tory test for gonorrhea and that disease is much more frequently suspected and diagnosed on clinical observations in the male than in the female.

SUMMARY AND CONCLUSIONS

There are 5,800 physicians practicing among 4,250,000 people in 355 cities and towns in Massachusetts. More than half of these physicians are located in twenty-one communities in the Boston Metropolitan Health District, although only 39 per cent of the population lives there. From unpublished studies it appears that more than half the 5,800 physicians treat gonorrhea and nearly half of them treat syphilis, but only 15 per cent reported gonorrhea and 8 per cent reported syphilis in 1930. A higher proportion of physicians report gonorrhea from the smaller communities than from the larger, but the reverse is true of syphilis. Almost half

TABLE 11.—*Migration to Boston Clinics and Physicians, Compared with Remainder of State* *

Reported by	Cases of Syphilis	Per Cent of Total Migration	Number of Communities
Boston clinics	400	44.9	76
Boston physicians	212	23.8	64
Other clinics (14 cities)	158	17.8	67
Other physicians (47 cities)	121	13.6	75

* Clinic cities in or close to the Boston area feel this attraction as they do in the case of gonorrhea.

TABLE 12.—*Migration of Patients with Syphilis from Clinic Cities Near Boston* *

Migration to			Treated Locally by			Treated by	
M.D.	Clinic	Total	M.D.	Clinic	Total	M.D.	Clinic
18.7	34.3	53.0	19.0	28.0	47.0	37.7†	62.3†

* Quincy, Newton, Lynn, Cambridge: 268 cases.
† Compare with table 10.

the reported cases are distributed among 10 per cent of the physicians reporting, and apparently less than 2 per cent of the physicians in the state classify themselves as specialists in the management of these diseases. The twenty-nine clinics in the state are reasonably available to at least 75 per cent of the

population and probably to an even greater proportion of the infected population. These clinics report most of the cases they see.

Nearly 45 per cent of the reported cases of gonorrhea and 22 per cent of the cases of syphilis were reported by "local" physicians, no matter how large or how small the community. The reported distribution of cases between physicians and clinics is more apparent than real: The small number of clinic cases in communities distant from clinics is accompanied by low reported case rates, while communities of the same size with or near clinics have high reported case rates. Since clinics report most of their cases and physicians do not, there is a disproportion in clinic cities, or those near clinics, between clinic cases and those reported by physicians.

Boston has a disproportionately high reported rate for both gonorrhea and syphilis. The attraction that Boston has as a medical center is striking, 60 per cent of the migrating patients with gonorrhea and 69 per cent of the migrating patients with syphilis having gone to that city for treatment, most of them, however, from cities in the Boston Health District.

There is little difference between male and female migration in either disease. Apparently a higher proportion of females with gonorrhea are reported from clinics, but there is evidence that this apparent difference is not real but due to failure of physicians to discover female gonorrhea. No such striking difference is noted between the sexes in syphilis.

It may be concluded that:

1. Migration for secrecy is not as great a factor as has been assumed, since an almost constant proportion of the cases are treated by local physicians in communities of all sizes. The lower percentage for syphilis may be explained on the basis of fewer specialists, greater cost of treatment, longer time required for cure, serious complications, and the general feeling that syphilis is more serious than gonorrhea.

2. Clinics apparently are not seriously taking cases away from physicians, for when there are no clinics available the reported rates of both gonorrhea and syphilis are only half as high as the rates in communities of the same size with, or near, clinics.

3. There is no real difference between migration of the two sexes or their choice between clinic and physician, the apparent difference in the case of gonorrhea being due to failure on the part of the physician to discover female gonorrhea.

4. A large medical center has a marked influence on migration of patients with either disease, but a greater one in the case of syphilis. This influence is effective in spite of local clinics and competent physicians or the size of the "home" community.

COMPARISON WITH THE MIGRATION OF PATIENTS WITH TUBERCULOSIS

Of all the common communicable diseases, tuberculosis is the only one, other than gonorrhea and syphilis, that frequently becomes a chronic economic and medical problem. The others, such as diphtheria, scarlet fever, measles and typhoid, are usually managed by the family physician; the cost of their care is relatively small and does not drain the family pocketbook over months or years. Specialized medical consultation is rarely required and there is no object in secrecy.

Tuberculosis, however, is chronic, often difficult to diagnose, requires expensive laboratory study, and is a serious economic problem to many people. The old public horror of the disease is not entirely dissipated, so that some patients still seek to keep their infections from being known.

Unfortunately, the reports for tuberculosis are so lacking in certain details that comparable analysis cannot be made of as many factors as was possible for gonorrhea and syphilis. For instance, it is impossible to determine which of the cases reported by municipal and county sanatoriums and other hospitals are clinic cases or institutional cases. In many instances it was impossible to determine whether a physician saw a patient in his private office or in the clinic of which he was a staff member. Thus 43.1 per cent of the 5,283 cases reported in 1930 could not be classified between clinic and physician or between voluntary migration to a clinic and final hospitalization.

TABLE 13.—*Migration of Patients with Tuberculosis (Percentage of Total)*

Size of Community	Migrated to			Reported Locally by			Reported by	
	M.D.	Clinic	Total	M.D.	Clinic	Total	M.D.	Clinic
Under 20,000	23.2	16.6	39.8	58.1	2.1	60.2	81.3	18.7
20,000-50,000	14.8	15.7	30.5	57.0	12.5	69.5	71.8	28.2
50,000-100,000	11.8	16.3	28.1	55.6	16.3	71.9	67.4	32.6
100,000-over	5.3	9.1	14.4	58.3	27.3	85.6	63.6	36.4
Boston	1.5	1.1	2.6	29.3	68.1	97.4	30.8	69.2
State	8.7	9.5	18.2	48.5	33.3	81.8	57.2	42.8

However, those reports which could be accepted as giving clear information indicate that there is much the same situation with tuberculosis as with gonorrhea and syphilis. Since most of the indefinite reports were from institutions that have associated diagnostic clinics, the figures for clinics in the following analysis are undoubtedly much too low.

There is no information available as to the proportion of physicians treating tuberculosis or specializing in its treatment. Nor have we felt that a study of the number of physicians reporting could be made without more effort than the accuracy of the results would warrant.

There is little difference between migration of the two sexes, but a higher proportion of the males than of the females appear to have been reported by clinics (45.7 per cent of males and 39.4 per cent of females).

In the state as a whole, 81.8 per cent of the patients were reported by local physicians and clinics as compared to 74.4 per cent of gonorrhea cases and 75.1 per cent of syphilis cases. Closer agreement, no doubt, would have resulted if the unidentified sanatorium clinic cases (mostly migrating cases) could have been included.

Clinics reported 42.8 per cent of the cases, as compared to 68.3 per cent for syphilis and 40.3 per cent for gonorrhea. For the reason just given, this figure is again probably too low.

The same apparent increase in clinic cases with increase in the size of the community is noted as in the other two diseases, but, owing to the impossibility of identifying many clinic cases, it is felt that nothing could be gained by comparing reported rates through the comparison of clinic cities with nonclinic cities distant from clinics.

Tuberculosis clinics are much more available than clinics for the treatment of gonorrhea or syphilis, there being fifty-eight municipal clinics in addition to the diagnostic clinics associated with the four state sanatoriums and others associated with the various county

sanatoriums. Consequently, migration to another city to reach a clinic occurs less frequently.

Patients also are more likely to go to their family physician for a "cold in the chest" than for a suspicious infection of the genito-urinary tract, which may have some bearing on the high percentage of cases reported by local physicians (48.5 per cent, as compared to 44.5 per cent for gonorrhea and 22.4 per cent for syphilis).

Further, what becomes of the patient after a diagnosis is made is important. Probably the reporting physician turns many cases of tuberculosis over to an institution for treatment, whereas most physicians treat the gonorrhea and syphilis that they discover. Consequently, choice between a clinic and a physician for reason of cost of treatment may be necessary much less frequently in tuberculosis than in gonorrhea or syphilis.

Boston, as a medical center, has a similar attraction in tuberculosis to that in gonorrhea or syphilis, 51.3 per cent of the 546 migrating cases having been reported from that city. Boston clinics reported 75 per cent of these and Boston physicians 25 per cent (table 13, to be compared with tables 5 and 9).

IOPAX

AN ANALYSIS OF THE RESULTS OBTAINED IN FORTY-FIVE CASES, WITH REPORT OF A CASE SHOWING A SEVERE REACTION FOLLOWING INJECTION OF IOPAX *

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With the introduction of a satisfactory drug for intravenous pyelography, Swick and von Lichtenberg made a valuable addition to diagnostic methods. How useful this method will become, what its disadvantages and dangers may be, and to what extent it will replace some of the older methods will be determined only by a long experience with its use.

The basis for this report is an analysis of the results obtained with iopax (introduced as "Uroselectan") in forty-five cases in which forty-seven injections were done. In all our cases a sterile, freshly prepared 40 per cent solution of iopax was injected directly and slowly into the vein. The usual dose for adults was 40 Gm., although in a few cases in which there was poor renal function or in which this amount had not given the desired results, larger doses were used. In children smaller doses were used, usually about 25 Gm. Three roentgenograms of the urinary tract were then taken as a routine; the first, fifteen minutes after the injection of the drug; the second, forty-five minutes after the injection, and the third, one hour and fifteen minutes after the injection. In many cases in which these routine three exposures did not give the desired results, further roentgenograms were taken at intervals of one-half hour for several additional hours. In a large percentage of the cases, retrograde pyelography was also carried out.

The cases and results obtained with iopax are briefly summarized in the accompanying tables.

Table 1 deals with six cases of pyelitis. In half of these cases complete bilateral pyelograms were obtained with iopax, and in five of the cases diagnostic pyelograms were obtained. The first four cases represent typical instances of pyelitis of childhood, and in these patients uniformly good results were secured. This may be explained by the relatively larger doses used in children, as compared with the adult dose of 40 Gm.

The cases of renal tuberculosis are summarized in table 2. Our results in this type of renal lesion were disappointing, for in only one of the four cases were diagnostic pyelograms obtained, although in none of them was there sufficient renal destruction to account for this failure. In one of his addresses on the subject of intravenous pyelography, von Lichtenberg prophesied that, in the future, cystoscopy would rarely be used in the diagnosis of renal tuberculosis and that it would be necessary only to demonstrate the tubercle bacilli in the urine from the bladder, for injections of iopax would demonstrate the lesion in the kidney. Our meager experience does not bear out this hope, for not only did iopax fail to give the desired results in three of our four cases of renal tuberculosis, but in studying our other intravenous pyelograms we were struck with the frequency with which the minor calices were not properly visualized, and such visualization is necessary for the early pyelographic diagnosis of renal tuberculosis. Furthermore, cystoscopy is still our only reliable means of determining the function of the individual kidney, for this cannot be accurately gaged by iopax, since it not infrequently happens that a normal kidney shows a poor pyelogram with this method.

In table 3 we have grouped our cases of renal and ureteral calculi. There were four of these cases, and in three, excellent results were obtained with iopax. In all three cases, definite obstruction was present, a condition that has been recognized as an aid in obtaining satisfactory results with intravenous pyelography. In case 11 a large stone which obstructed the ureteropelvic junction prevented a retrograde pyelogram, and the marked degree of hydronephrosis was determined only by means of the iopax pyelograms.

Table 4 presents our cases of obstruction of the upper urinary tract. Usually the various forms of ureteral obstruction tend to improve intravenous pyelograms, but this did not appear to be so in our cases. Only in case 21 were the results satisfactory, and here the pyelograms of both kidneys were excellent and a marked kinking of the right ureter was beautifully demonstrated.

Seven cases presenting various types of obstruction of the vesical neck, including the so-called neurogenic bladder, are summarized in table 5. On the whole, our results in this group of cases were not satisfactory. Renal damage undoubtedly accounted for some of the failures, but in most of the cases the renal function tests did not demonstrate severe degrees of renal damage. Furthermore, in four of the injections, doses greater than the usual dose were used. In the two cases of congenital obstruction of the vesical neck (cases 27 and 28), the results obtained were disappointing. In one case a complete pyelogram was obtained on one side with a dose of 40 Gm.; in the other case (case 28) the results were completely unsatisfactory, although renal function tests and retrograde pyelograms demonstrated the absence of any marked renal damage.

In our small group of congenital anomalies of the kidneys (table 6), uniformly good results were seen,

* From the Department of Surgery, the Lakeside Hospital.

and we found intravenous pyelography a definite aid in diagnosis. In two of the cases a double pelvis and ureter were suspected from the retrograde pyelograms of one of the pelves, but in neither case could the second ureter be catheterized.

In case 31 a very severe reaction followed the injection of the drug, and for this reason a more complete case report is given here:

A man, aged 55, was sent to the hospital by the industrial commission for complete urologic investigation. One year and four months before admission to the hospital, he fell from a height, striking and injuring the left lumbar region. Immediately following this injury he had hematuria for a short period and then was troubled with frequency of urination. One month after the accident, acute retention of urine developed, for which he was admitted to another hospital. A benign hypertrophy of the prostate was found, and this obstruction was later relieved by a suprapubic prostatectomy. Since this operation, the patient had been troubled with frequency, nocturia, and occasional questionable hematuria. In addition to this he had had constant indefinite pain in the back.

The patient was well nourished and healthy. The temperature, pulse and respirations were normal. The heart and lungs were normal. The blood pressure was 145 systolic and 110 diastolic. Abdominal examination did not reveal any abnormal conditions. Rectal examination gave negative results.

Laboratory examination revealed: red blood cells, 4,800,000; hemoglobin, 90 per cent; white blood cells, 6,400; blood Wassermann reaction, negative; blood urea, 35 mg. per hundred cubic centimeters; phenolsulphonphthalein, 40 per cent excreted in two hours and ten minutes. The Mosenthal test showed normal variation of specific gravity. The urine was hazy and acid; the tests for albumin and sugar were negative. Microscopic examination revealed a moderate number of white blood cells, but no red blood cells or casts.

On cystoscopic examination the bladder was found to be entirely normal except for a mild degree of generalized cystitis. The cystoscope was easily introduced into the bladder, and no obstruction was met in the urethra. The vesical neck did not show obstructive lesions of any sort. The right ureteral orifice appeared normal and was easily catheterized. Two ureteral orifices were seen on the left side, but only the anterior one could be catheterized. The bladder urine was found to contain a moderate number of white blood cells but no red blood cells. The urine from the right kidney was completely normal. The urine obtained from the upper left renal pelvis (lower ureteral orifice) showed an occasional white blood cell. A divided renal function test (1 cc. of phenolsulphonphthalein intravenously) showed a good function on both sides. Retrograde pyelograms were made, and these demonstrated a normal pelvis on the right and a small upper pelvis of a double kidney on the left side. Following this cystoscopic examination, the patient had no reaction, and the temperature and respirations remained normal. On the following day, at noon, 40 Gm. of iopax was injected directly into the vein as a freshly prepared 40 per cent sterile solution. The pyelograms that were obtained were satisfactory and definitely showed a double pelvis on the left side but no other pathologic condition.

A few hours after injection of the iopax, the patient's temperature suddenly rose to 40 C. (104 F.), the pulse rose to 112, respirations became rapid and labored, and the patient felt very sick. He appeared flushed, hot and acutely ill. The

TABLE 1.—*Pyelitis*

				Renal Function			Pyelograms†			
							Complete		Diagnostic	
Case	Age	Sex*	Final Diagnosis	P.S.P. per Cent in 2 Hr., 10 Min.	Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Right	Left	Right	Left
1	9	♀	Acute pyelitis	75	23	25	Yes	Yes	Yes	Yes
2	9	♀	Acute pyelitis	70	15	30	No	No	Yes	Yes
3	6	♀	Acute pyelitis	80	..	25	Yes	Yes	Yes	Yes
4	6	♀	Bilateral pyelitis, chronic; chronic arthritis	80	20	25	Yes	Yes	Yes	Yes
5	16	♀	Pyelitis of pregnancy	60	20	40	No	No	Yes	Yes
6	45	♂	Bilateral pyelitis, chronic; cystitis	35	30	40	No	No	No	No

* In the tables ♂ indictes male; ♀, female.

† The four columns under the main heading of "Pyelograms" show the results obtained after the injection of iopax. The right and the left pyelograms are listed separately in order to record the kind of pyelogram obtained in the normal kidney in cases in which the lesion was unilateral. The results are tabulated as "negative" or "positive." A pyelogram was considered as "complete" only when both the pelvis and the minor calices were distinctly outlined. The outlining of the ureter was not considered, since a satisfactory ureterogram was obtained in only a few of our cases. A pyelogram was considered "diagnostic" when it gave sufficient information to be of diagnostic value in the specific case, even though the pyelogram was not perfect.

TABLE 2.—*Renal Tuberculosis*

				Renal Function			Pyelograms			
							Complete		Diagnostic	
Case	Age	Sex	Final Diagnosis	P.S.P. per Cent in 2 Hr., 10 Min.	Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Right	Left	Right	Left
7	62	♂	Pulmonary tuberculosis; renal tuberculosis	60	24	40	No	No	No	No
8	30	♂	Renal tuberculosis, left; perinephric abscess, left	70	35	40	No	No	No	No
9	56	♀	Renal tuberculosis, right	68	20	40	Yes	Yes	Yes	Yes
10	27	♂	Bilateral renal tuberculosis	35	40	40	No	No	No	No

TABLE 3.—*Renal and Ureteral Calculi*

				Renal Function			Pyelograms			
							Complete		Diagnostic	
Case	Age	Sex	Final Diagnosis	P.S.P. per Cent in 2 Hr., 10 Min.	Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Right	Left	Right	Left
11	20	♀	Nephrolithiasis, left; hydronephrosis, left	80	19.5	40	Yes	Yes	Yes	Yes
12	42	♂	Bilateral pyelonephritis; nephrolithiasis, left; ureteral calculi, left	70	25	40	Yes	Yes	Yes	Yes
13	54	♂	Ureteral calculus, right	65	31	40	Yes	Yes	Yes	Yes
14	26	♂	Ureteral calculus, right	65	30	50	No	No	No	No

leukocyte count increased to 14,800, but there was no change in the urinary observations. The throat showed a very mild degree of congestion. Examination of the chest, which had been normal previously, now showed numerous moist and crackling râles scattered throughout both lungs but most marked at the right base. There was no change, however, in the percussion note or voice sounds, and expansion was equal on the two sides. The heart was normal although rapid. The abdominal examination was negative, and there was no tenderness in either renal region.

The patient was extremely ill for about sixty hours; during this time the temperature remained high, and then it gradually began to come down, reaching normal on the fifth day, as shown in the accompanying chart. The pulmonary signs, which never became more marked than those described, gradually began to disappear after several days, and had entirely disappeared by the fifth day. The sputum during the acute course of the disease was thin and mucoid with occasional streaks of purulent material. Microscopically it showed numerous polymorphonuclear leukocytes but no erythrocytes.

Although this patient recovered completely from this reaction and apparently was not permanently injured by it, still, during the early course of the disease he appeared to be an extremely sick man and we were greatly alarmed about his condition.

Table 7 shows the results obtained in our two cases of renal tumor. In one case excellent results were obtained, whereas in the other case no pyelographic shadows whatever were seen in the roentgenograms.

Table 8 shows the good results that we obtained in our two cases of nephroptosis. The method seems desirable in this type of case, for, when the pyelograms are taken in the upright position, the ureter is not kept rigid by a catheter, thus allowing the ureteral kinks and the degree of ptosis to be clearly demonstrated.

In two cases of carcinoma of the bladder (table 9), we attempted to determine the condition of the upper urinary tract by means of intravenous pyelography. The pyelograms obtained showed a moderate degree of hydronephrosis. In one case, however, no pyelogram was obtained on the right side. Satisfactory cystograms were obtained in both cases.

Table 10 represents a group of miscellaneous cases in which varied results were obtained.

Case 41 is of especial interest. This patient sustained an injury to the left kidney, which resulted in marked hematuria. Two injections of iopax were done, the first on the day following the injury and the second, seventeen days later. Neither time could any shadow

TABLE 4.—*Obstructions of the Upper Urinary Tract*

				Renal Function			Pyelograms			
							Complete		Diagnostic	
Case	Age	Sex	Final Diagnosis	P.S.P. per Cent in 2 Hr., 10 Min.	Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Right	Left	Right	Left
15	21	♀	Stricture of ureter (contiguous retroperitoneal tuberculous glands); hydronephrosis, right	65	23	40	No	No	No	No
16	29	♀	Left ureteral obstruction due to uterine fibroid; pyelitis, left	50	16	40	No	No	No	No
17	64	♀	Kinked ureter, left; pyonephrosis, left; perinephric abscess, left	60	20	30*	No	No	No	No
18	45	♀	Stricture of ureter, left	80	25	40	No	No	No	No
19	34	♀	Occlusion of ureter, postoperative, right; hydronephrosis, right	50	30	40	No	No	No	No
20	33	♂	Stricture of ureter, right	60	19	40	No	No	No	No
21	23	♀	Kinked ureter, right; hydronephrosis, right	80	15	40	Yes	Yes	Yes	Yes

* Unusually small adult weighing slightly more than 90 pounds (41 Kg.).

TABLE 5.—*Obstructions of the Lower Urinary Tract and Neurogenic Bladder*

				Renal Function			Pyelograms			
							Complete		Diagnostic	
Case	Age	Sex	Final Diagnosis	P.S.P. per Cent in 2 Hr., 10 Min.	Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Right	Left	Right	Left
22	55	♂	Benign hypertrophy of prostate	15	20	60	No	No	No	No
23	66	♂	Benign hypertrophy of prostate; bilateral hydronephrosis (moderate)	15	33	50	No	No	Yes	Yes
24	58	♀	Tabetic bladder; syphilis of central nervous system	85	36	40	No	No	No	No
25	31	♂	Neurogenic bladder; bilateral infected hydronephrosis and hydro-ureters; cystitis	10	40	40 80	No No	No No	No No	No No
26	12	♂	Neurogenic bladder; spina bifida occulta	40	27	30	No	Yes	Yes	Yes
27	11	♂	Fibrosis of vesical neck (congenital type) with chronic retention of urine	80	25	40	Yes	No	Yes	No
28	5	♂	Fibrosis of vesical neck (congenital type) with chronic retention of urine; bilateral infected hydronephrosis and hydro-ureters	35	40	25	No	No	No	No

TABLE 6.—*Congenital Anomalies of Kidneys*

				Renal Function			Pyelograms			
							Complete		Diagnostic	
Case	Age	Sex	Final Diagnosis	P.S.P. per Cent in 2 Hr., 10 Min.	Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Right	Left	Right	Left
29	19	♀	Double pelvis and ureter, left; cystitis; renal tuberculosis, left (?)	75	30	40	No	No	Yes	Yes*
30	24	♂	Double pelvis and ureter, right	..	..	40	Yes	Yes	Yes	Yes
31	55	♂	Left double pelvis and ureters; left pyelitis	40	35	40	Yes	Yes	Yes	Yes

* Diagnostic of double pelvis but did not show sufficient detail of calices to make possible a diagnosis of renal tuberculosis.

whatever be demonstrated in the region of the left renal pelvis. Retrograde pyelograms were made, which showed a double pelvis but no other abnormalities.

Case 45 was clinically a case of bilateral polycystic kidneys in which the kidneys were only moderately enlarged. Although no evidence of renal insufficiency had yet appeared, the intravenous injection of 40 Gm. of iopax did not produce any shadow whatever in either renal pelvis.

TABLE 7.—*Renal Tumors*

Case	Age	Sex	Final Diagnosis	Renal Function: P.S.P. per Cent in 2 Hr., 10 Min.	Renal Function: Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Pyelograms: Complete: Right	Pyelograms: Complete: Left	Pyelograms: Diagnostic: Right	Pyelograms: Diagnostic: Left
32	58	♂	Papillary carcinoma of kidney, right	62	25	40	Yes	Yes	Yes	Yes
33	71	♂	Tumor of kidney, right	33	33	40	No	No	No	No

TABLE 8.—*Nephroptosis*

Case	Age	Sex	Final Diagnosis	Renal Function: P.S.P. per Cent in 2 Hr., 10 Min.	Renal Function: Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Pyelograms: Complete: Right	Pyelograms: Complete: Left	Pyelograms: Diagnostic: Right	Pyelograms: Diagnostic: Left
34	23	♀	Nephroptosis, right	85	..	40	No	Yes	Yes	Yes
35	36	♀	Nephroptosis, bilateral	50	39	40	Yes	Yes	Yes	Yes

TABLE 9.—*Tumors of the Bladder*

Case	Age	Sex	Final Diagnosis	Renal Function: P.S.P. per Cent in 2 Hr., 10 Min.	Renal Function: Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Pyelograms: Complete: Right	Pyelograms: Complete: Left	Pyelograms: Diagnostic: Right	Pyelograms: Diagnostic: Left
36	67	♀	Papillary carcinoma of bladder	35	38	40	Yes	Yes	Yes	Yes
37	49	♀	Squamous cell carcinoma of bladder	75	23	40	No	Yes	No	Yes

TABLE 10.—*Miscellaneous Conditions*

Case	Age	Sex	Final Diagnosis	Renal Function: P.S.P. per Cent in 2 Hr., 10 Min.	Renal Function: Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Pyelograms: Complete: Right	Pyelograms: Complete: Left	Pyelograms: Diagnostic: Right	Pyelograms: Diagnostic: Left
38	11	♂	Hematuria (microscopic)	..	..	40	No	No	No	No
39	30	♀	Tuberculosis of retroperitoneal lymph glands with calcification	85	25	40	Yes	Yes	Yes	Yes
40	43	♂	Tuberculosis of hip; normal urinary tract	45	18	40	Yes	Yes	Yes	Yes
41	39	♂	Laceration of left kidney; double pelvis, left	70	32	40	Yes	No	Yes	No
			Second injection made eighteen days after injury	..	..	40	No	No	No	No
42	57	♂	Carcinoma of sigmoid involving bladder	..	..	40	Yes	Yes	Yes	Yes
43	70	♂	Carcinoma of sigmoid involving bladder	52	28	40	No	No	No	No
44	37	♀	Interstitial cystitis	50	21	40	No	Yes	No	Yes
45	45	♂	Polycystitic kidneys	55	34	40	No	No	No	No

While our series of forty-five cases is much too small to allow any final conclusions to be drawn, certain preliminary conclusions and indications for the use of iopax seem evident.

In certain types of cases the method has definite value. In pyelitis of childhood, for example, it gave such consistently good results that it probably should always be used before attempting cystoscopy. A common problem in children is the differentiation between a simple pyelitis and an infection of the urinary tract superimposed on some form of congenital obstruction. It is in these obstructive conditions that an early diagnosis is essential, for severe renal damage may occur while the child is being treated for a simple pyelitis. In the majority of these cases intravenous pyelography will probably give the necessary information (absence or presence of hydronephrosis) and thus obviate the necessity of a cystoscopic examination.

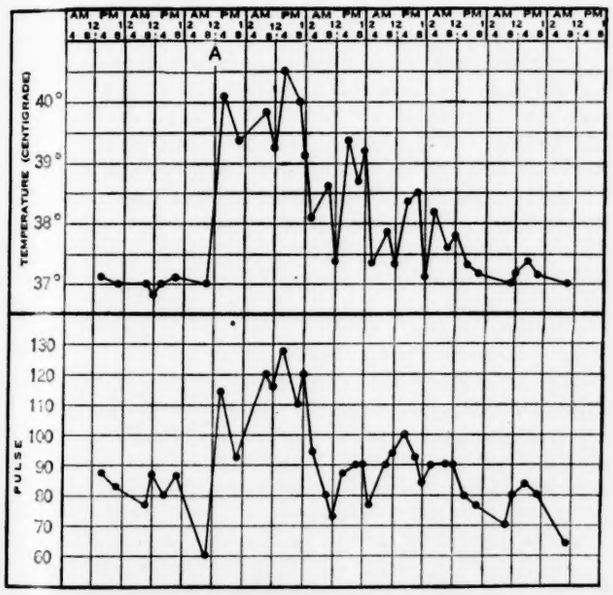
Good results were also obtained in cases of urinary lithiasis, congenital anomalies of the kidneys, and nephroptosis. Our results in the cases of obstruction of the upper urinary tract were not good, but it is likely that better results will be found in a larger group of these cases. Only two renal tumors occurred in our series, but excellent pyelograms were obtained in one case. Our number of vesical tumors is also too small to permit any conclusions, but the results were encouraging.

When the figures for the entire series of cases are examined, however, they are somewhat disappointing, for complete pyelograms were obtained in only about 40 per cent of the cases and diagnostic results in only 51 per cent. Doses of iopax reaching as high as from 60 to 80 Gm. have been recommended for routine use by some investigators, in order that satisfactory pyelograms may be more uniformly obtained. We have hesitated to follow this suggestion because of the frequency with which mild reactions were observed after the injection of only 40 Gm. of the drug. Mild reactions, such as nausea, vomiting, sensation of warmth, pallor, and pain in the arm, occurred in over 55 per cent

of our cases. Furthermore, the case in which the severe reaction resulted (case 31) occurred fairly early in our series and made us timid about using larger doses.

An objection that may well be raised to the use of iopax is the expensiveness of the method, for not only are the necessary repeated roentgenograms costly but the drug itself is expensive. When the total cost of the method is compared with only a 50 per cent chance of obtaining any diagnostic information, one hesitates to use the method as a routine in all cases requiring urologic investigation.

Our present impressions concerning intravenous pyelography by means of iopax may be briefly stated as follows: Although the method is undoubtedly a valuable addition to our other methods of diagnosis, it cannot be expected to give consistently good results. In certain selected types of cases it should be used as a routine, whereas in other cases it should be used only when the older methods fail. It is very unlikely that it will ever replace cystoscopy and retrograde pyelography. Larger



Temperature (upper curve) and pulse (lower curve) in case 31: *A*, injection of iopax.

doses will no doubt tend to give better results, but until sufficient evidence has been collected to show that the drug is nontoxic, a conservative attitude should be maintained concerning this point.

SUMMARY

An analysis was made of the results obtained with iopax in forty-five cases.

Diagnostic pyelograms were obtained in only 51 per cent of the cases, and completely satisfactory pyelograms in about 40 per cent of the cases.

The best results were obtained in pyelitis of childhood, urinary lithiasis, congenital anomalies of the kidneys, and nephroptosis. Iopax was not satisfactory in our cases of renal tuberculosis.

One of the main deficiencies of the method was that the minor calices were frequently not visualized at all or were incompletely visualized.

The drug may not be entirely nontoxic, as evidenced by frequent mild reactions and one severe reaction.

The method is expensive, and this becomes a valid objection to its routine use when one considers the frequency with which unsatisfactory results occur.

THE PATHOLOGIC BASIS OF SYMPTOMS IN NEPHRITIS*

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Any attempt at classification of nephritis should take into consideration the following facts: 1. The kidneys are very complex organs composed of about two million physiologic units, each of which is itself a complex structure. 2. The various parts of each physiologic unit are so interrelated and coordinated that serious changes in one part are followed by correlated changes in other parts of the unit. 3. The noxious agents which cause damage to the kidneys are probably multiple in kind, vary in degree of injuriousness, and may act either intermittently, remittently or continuously. 4. The number of types of relatively simple pathologic unit lesions that may be produced in the kidneys by these noxious agents is great. 5. The blood supply of the kidneys is very abundant, and primary changes limited entirely to the blood vessels may induce grave alterations in renal structure and function. 6. Nephritis is not a static condition, but both clinical and anatomic pictures change with the progress of the disease. 7. Effective elimination of waste products by the kidneys depends on a blood flow and blood pressure in the glomeruli adequate to maintain an effective filtration pressure within the glomerular capillaries. 8. The number of mathematically and biologically possible combinations of the foregoing variables makes any too detailed classification of nephritis an almost hopeless and probably a fruitless task.[1]

Two main types of nephritis can be readily differentiated: (1) that in which the secretory portion of the kidneys is primarily damaged and (2) that in which the primary lesion is in the smaller arteries and arterioles. For clinical and even for more scientific purposes such a simple classification meets the essential requirements. More elaborate classifications are likely to be confusing because they attempt to make separate types and clinical and pathologic entities out of (*a*) different stages of the same morbid process or (*b*) different combinations of the same fundamental unit pathologic lesions.

This simple but comprehensive classification is justified by two facts: 1. The basic pathologic changes are distinctly different in the two types. 2. These structural alterations have fundamentally different effects on renal function. Cases in the first group may be either acute, subacute or chronic, and have been variously termed parenchymatous nephritis, glomerulonephritis, and nephrosis. The basic pathologic process common to all these forms is degeneration with inflammation of varying degrees of intensity; the fundamental functional change is an increased permeability of the renal filter. The second group is essentially chronic and includes cases generally classed as chronic interstitial nephritis and primary, genuine or arteriolosclerotic contracted kidneys. The underlying pathologic process is a diffuse hyperplastic sclerosis of the smaller branches of the renal arteries, especially the afferent vessels to the glomeruli. The effect of this change is a reduction in blood flow and blood pressure, and therefore of effective filtration pressure, in the glomeruli, with resultant inadequate excretion of waste products.

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1. Simonds, J. P.: The Problem of Classification of Nephritis, J. A. M. A. **95**: 930 (Sept. 27) 1930.

In the first of the two aforementioned broad groups the secretory apparatus of the kidney is damaged. The kidneys themselves are swollen and larger than normal and, in the acute and subacute forms, the surface after the capsule has been stripped off is relatively smooth, the cortex is increased in thickness, and the normal cortical markings are indistinct and irregular. Microscopically, there are various types of alterations in glomeruli and retrogressive changes in the tubular epithelium.[1] As the disease progresses and becomes chronic, more and more physiologic units are destroyed and are replaced by fibrous tissue, the surface becomes pitted with small scars, and the cortex shows irregularities in thickness. The glomeruli suffer serious change, even in nephrosis, as shown by Bell.[2] The blood flow through the glomerular capillaries may or may not be interfered with as a result of thrombosis or of swelling or proliferation of the lining endothelium. When, as in lipoid nephrosis, the capillaries are only partially obstructed so that they continue to function, atrophy of the tubules does not occur. The most important functional alteration in this type is an increased permeability of the glomeruli due to alterations in the lining endothelium, damage to the basement membrane and retrogressive changes in the covering epithelium. This explains the absence of retention of waste products and the presence of albumin and even blood in the urine. In spite of the partial disturbance in glomerular blood flow, the increased permeability permits the adequate elimination of waste products. The available filtration pressure within the hyperpermeable glomeruli is adequate for proper functioning of the mechanism.

The increased permeability of the glomeruli in the first type of nephritis permits the escape of albumin in the urine. The lymph which escapes through the capillary walls of all organs contains albumin. There are only three locations in the body in which albumin does not normally escape through the capillary wall; namely, in the glomeruli of the kidneys, in the alveolar walls of the lungs and in the choroid plexus of the brain. In each of these locations the capillary endothelium is covered on its outer surface by a layer of closely adherent flat epithelium. In the glomeruli, at least, as shown by McGregor,[3] these are separated by a thin hyaline basement membrane. Epithelium is normally impermeable to colloidal solutions. It appears probable, therefore, that the presence of albuminuria in the first type of nephritis (which includes the so-called nephrosis and glomerulonephritis) is due to alterations in the basement membrane and retrogressive changes in the epithelium of the glomeruli rather than to changes in their endothelium.

The edema which is so characteristic of this type depends on (1) depletion of the serum albumin of the blood by its loss in the urine, and (2) the retention of crystalloids in the tissues. Barker and Kirk[4] have shown by a series of unique experiments on dogs and by quantitative studies of serum albumin of the blood of nephritic patients that the reduction of the serum albumin of the blood to 1 per cent or below is followed by the accumulation of fluid in the subcutaneous tissues; i. e., by edema. Fahr, Kerkhof and Conklin[5] found that the normal values for the osmotic pressure of the plasma proteins were from 20 to 23 mm. of mercury and that the osmotic pressure of the plasma proteins was 11 mm. of mercury, or lower in all their cases of nephropathic edema. The retention of crystalloids in the tissues is apparently not due to inability of the kidneys to excrete them but to some other mechanism possibly concerned with an effort to maintain the concentration of the proteins of the blood at their normal level. The accumulation of chlorides in the tissues increases the osmotic pressure of the tissue fluids, and this, in turn, leads to the withdrawal of water from the blood, causing concentration of serum albumin in the blood and increasing the fluid content of the tissues, inducing edema.

The presence of large amounts of albumin in the urine together with products of disintegration of the tubular epithelium, which is the seat of various retrogressive changes, furnishes material for the formation of the casts which are a characteristic observation in this type of nephritis. The presence of albumin is also a factor in the increased specific gravity of the urine in this disease.

All forms of this type of nephritis, whether they are called nephrosis, glomerulonephritis or parenchymatous nephritis, show the aforementioned characteristics (exudation, degeneration and increased glomerular permeability) in varying degree throughout the course of the disease. The progressive destruction of physiologic units in very chronic cases may finally result in such a reduction in available glomerular filtration surface that an increase in systemic blood pressure becomes necessary in order to supply a filtration pressure adequate to proper elimination of waste products. Thus, increased blood pressure, not a part of the disease per se, may appear late in the course of this type of nephritis, perhaps as a compensatory mechanism.

In the second or vascular type, conditions are quite different. The glomeruli are not primarily injured, and the filtration apparatus is not rendered more permeable. So far as the glomeruli are concerned, the function of filtering urine from the blood proceeds more or less normally until secondary changes occur in the glomeruli. The primary change in this type is in the smaller arteries and arterioles, especially in the afferent vessels to the glomeruli, and consists of a narrowing of their lumens, as a result either of arteriospasm or, more commonly, of a diffuse hyperplastic sclerosis. This change is quite different from the ordinary type of arteriosclerosis (atherosclerosis). The latter is nodular in distribution, involving only a sector of the circumference of the vascular lumen, and consists of a focus of connective tissue hyperplasia, with fatty degeneration and deposit of lipoids, in the intima. This change may materially interfere with the circulation in small arteries and, as a result of a terminal thrombosis, may entirely occlude the vessel, such as a branch of the coronary or the renal artery. Such a result is focal rather than diffuse. In the hyperplastic type, fibrosis without noticeable fatty degeneration occurs throughout the entire circumference of the intima. The lumen is gradually narrowed and is ultimately obliterated and replaced by a core of connective tissue. This change is not limited to the renal arterioles. In cases of this type of nephritis I have seen it in the smaller arteries and arterioles of the spleen, pancreas and liver, and in the suprarenals and surrounding fat. It has also been observed by Kernohan, Anderson and Keith[6] in the arterioles of skeletal muscles. This second type of

2. Bell, E. T.: Lipoid Nephrosis, Am. J. Path. **5**: 587 (Nov.) 1929.

3. McGregor, Leone: The Finer Histology of the Normal Glomerulus, Am. J. Path. **5**: 545 (Nov.) 1929.

4. Barker, M. H., and Kirk, E. J.: Experimental Edema (Nephrosis) in Dogs in Relation to Edema of Renal Origin in Patients, Arch. Int. Med. **45**: 319 (March) 1930.

5. Fahr, G.; Kerkhof, A., and Conklin, C.: Osmotic Pressure of Plasma Proteins in Nephritis, Proc. Soc. Exper. Biol. & Med. **7**: 720 (April) 1931.

6. Kernohan, J. W.; Anderson, E. W., and Keith, N. M.: The Arterioles in Cases of Hypertension, Arch. Int. Med. **44**: 395 (Sept.) 1929.

"nephritis" is, therefore, essentially a generalized disease of the arterioles of the body and is not primarily a disease of the kidneys. The occurrence of this change in the arterioles of the kidneys affects renal function and ultimately causes death from uremia if this termination does not occur earlier in the course of the disease from cerebral hemorrhage, decompensation of the hypertrophied heart, or intercurrent infection.

Arteriosclerotic contracted kidneys, unlike the arteriolosclerotic form, may show little or no functional disturbance in spite of the large areas of replacement fibrosis (scars). This is because the vascular changes are focal rather than diffuse. Between the scars enough renal tissue remains with sufficient blood supply for efficient functioning.

The secretion of urine depends on (1) the blood pressure and (2) the rate and volume of blood flow, in the glomerular capillaries. In order to maintain a pressure and blood flow adequate to the normal secretion of urine in the presence of this diffuse hyperplastic arteriolosclerosis, an increase of systemic blood pressure is necessary. This is characteristically the first symptom to manifest itself in this form of the disease. This increased systemic blood pressure at first compensates for the narrowing of the arterioles, and the normal glomeruli receive enough blood under sufficient pressure to excrete the normal waste products of the body. Later, glomeruli are progressively destroyed or rendered incapable of functioning as a result of either (1) the extension of the sclerosing process from the afferent arterioles into the glomerular capillaries or (2) complete occlusion of the afferent vessel by thrombosis or obliterating endarteritis.

The factor of safety of the kidneys is high; i. e., there is four or five times as much kidney substance as is actually necessary to perform adequately the function of these organs. Or, stated differently, three fourths of the total normal kidney substance may be removed without the animal showing any signs of renal insufficiency. Hence a very extensive destruction of glomeruli and their tubules may occur without evidence of renal insufficiency, provided an adequate blood pressure and blood flow are maintained in the remaining intact glomeruli. In this type of nephritis, retention of waste products is not due to primary deficiency in function of the glomeruli but to their failure to receive sufficient blood under adequate pressure to enable them to act as efficient filters. The increased systemic blood pressure is a compensatory mechanism which may, for a time, enable the kidneys to perform their function in a satisfactory manner but may at the same time endanger life by its effect on other organs, especially the brain.

Schapiro has shown, by injecting kidneys which were the seat of this type of disease, that only a part of the capillary loops were open in a glomerulus whose afferent vessel was markedly narrowed. This may be a further compensatory mechanism. If the narrowed artery cannot deliver enough blood to maintain the necessary blood pressure and blood flow in its whole glomerulus, it may be able to maintain these necessary conditions in a part of the glomerulus, so that this structure is not rendered entirely functionless.

The work of Richards [7] and his students has furnished more definite proof of an older view that the glomeruli are merely filters through which passes a fluid containing urea, chlorides and other waste products in the same concentration as that in which they are present in the blood and that the urine is concentrated in the tubules as a result of the action on the tubular epithelium by the absorption of water. In this vascular type of nephritis the kidneys are unable to concentrate the urine in the normal manner. The urine is increased in quantity and its specific gravity becomes "fixed" at a low level. The quantity of voided urine is not as great as the estimated amount (100 liters in twenty-four hours) [8] that passes through the glomeruli of normal kidneys, and it contains urea and other waste products in greater concentration than they are present in the blood but not in as great concentration as they occur in normal urine. Hence some ability to concentrate is still possessed by the kidneys in this type of nephritis.

How, then, are we to account for the increased quantity and lowered specific gravity of the urine in this disease? Two factors are probably concerned: (1) atrophy of the tubular epithelium, and (2) diminished blood flow through the plexus of capillaries which surround the tubules and receive their blood from the efferent vessels of the glomeruli. Attention has already been called to the interrelation of the different parts of the complex physiologic unit of the kidney; namely, the afferent vessel, the glomerulus, the capsule of Bowman and the long tortuous tubule to which it gives rise. In this type of nephritis the function of the glomeruli is interfered with, not by primary disease of their structure but as a result of changes in the vessels which supply them with blood. Destruction or partial or complete loss of function of a glomerulus from this cause is followed by atrophy of the tubule that receives its secretion, and atrophic epithelium cannot function normally.

Perhaps of greater importance is the inadequacy of the blood supply to the tubules. The efferent vessel leaves the glomerulus and breaks up into a plexus of capillaries which surrounds the first and functionally most important part of the renal tubule connected with that glomerulus. A glomerulus supplied by a sclerosed and stenosed arteriole receives a diminished quantity of blood, perhaps only enough to fill a part of its capillary loops, as shown by Schapiro. The amount of blood which reaches the peritubular plexus is therefore below normal. This diminished blood supply results in inadequate nutrition of the tubular epithelium which is concerned with the concentration of the urine. Insufficient nutrition leads to atrophy and to diminished function; i. e., incomplete concentration of the urine. Or if, as is held by some, the function of the tubules is not to concentrate urine but actually to excrete the crystalloids of the urine, the effect on renal function of insufficient nutrition due to these vascular changes would be the same in either case; namely, subnormal excretion and, therefore, retention of waste products.

Hence in a case of this vascular type of nephritis of moderate or great severity, two things occur: 1. The glomeruli do not filter out from the blood the total enormous amount of dilute solution of waste products furnished by the glomeruli of normal kidneys. This is due to reduced circulation of blood in the glomerular capillaries because of the narrowed lumens of the arterioles and afferent vessels. The amount of urine separated in the glomeruli, however, probably greatly exceeds the quantity passed from the bladder. Diminished glomerular filtration must be present to account for the accumulation of waste products in the blood. In diabetes insipidus, in which the filtration mechanism is quite effi-

7. Richards, A. N.: Kidney Function, Harvey Lectures, 1920, vol. 16.

8. Cushny, A. R.: The Secretion of Urine, London, 1926.

cient, there is no evidence of renal insufficiency in spite of the very high dilution of the urine. 2. As a result of atrophy of the tubular epithelium due to diminished gomerular function and to reduced blood supply to the tubule, the normal concentration of the urine filtered through the glomeruli does not take place.

In this form of nephritis, therefore, increased quantity of voided urine of low specific gravity actually means both decreased glomerular filtration and incomplete concentration in the tubules.

Fixation of specific gravity is a characteristic clinical manifestation of this type of nephritis. It is probably the result of four factors: 1. As a result of the vascular changes and the structural and functional alterations which they entail, the factor of safety of the kidneys is reduced to or below the critical point. 2. As a consequence, these organs are continually functioning at their maximum capacity. 3. They cannot respond to the normal diurnal changes in blood pressure and blood flow which are responsible for the differences in specific gravity of day and night urines of normal persons. 4. There is even the probability that the normal diurnal changes in blood pressure and rate and volume of blood flow through the kidneys may not occur in this type of nephritis because of the constant hypertension.

While most cases of nephritis fall readily into one or the other of these two groups, combined forms may occur. A clear understanding of the basic pathologic changes characteristic of each type and of their influence on renal function should aid in interpreting the clinical manifestations of these mixed forms.

In the treatment of these two types, quite different methods would appear to be rational. In the first type a high protein diet should aid in restoring the depleted serum albumin. Reduction of water intake and of salt in the diet should aid in relieving the edema. In the second type a high protein diet would add to the nitrogenous waste products which the kidneys are already unable adequately to excrete. Normal or abundant water intake might aid in flushing out the accumulated waste products.

SUMMARY

1. Two types of nephritis can be differentiated: (*a*) that in which the essential damage is to the secretory portion of the kidneys, and (*b*) that in which the smaller arteries and arterioles are characteristically involved. This second type is not so much a primary disease of the kidneys as a generalized disease of the arterioles of the body.

2. The basic changes in the first type are degenerative and exudative (inflammatory) resulting in increased permeability of the renal filter without retention of nitrogenous products but with loss of albumin in the urine, depletion of blood serum albumin, retention of crystalloids in the tissues and edema. In the second type the fundamental pathologic change is a hyperplastic sclerosis of the smaller renal arteries and arterioles with narrowing of their lumens, (*a*) reducing blood pressure and blood flow in the glomeruli below that required for adequate filtration and (*b*) interfering with the nutrition and therefore with the function, of the tubules, thus causing retention of nitrogenous waste products.

3. More elaborate classifications are confusing because they attempt to make separate entities and types out of (*a*) different stages of the same morbid process or (*b*) different combinations of the same fundamental unit pathologic lesions.

4. If due recognition is given to the fact that nephritis is a progressive disease, it is possible, by means of this simple classification, to make a reasonably satisfactory correlation between its clinical manifestations and their pathologic basis, and to elaborate the principles of rational treatment.

Clinical Notes, Suggestions and New Instruments

SUBACUTE BACTERIAL ENDOCARDITIS WITH LARGE BRAIN ABSCESS *

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But few cases of definite subacute bacterial endocarditis associated with brain abscess have been reported. Zolotowa [1] recently described a case with purulent meningo-encephalitis. Kimmelsteil,[2] in an excellent article on the subject, reports several cases with brain abscesses of very minute or microscopic size. Nathan [3] reports a case with microscopic brain abscesses. Winkelman and Eckel [4] cite a case with multiple small brain abscesses. Nadler and Herndon [5] report a case with a pea-sized purulent area in the internal capsule. Gilmore [6] observed a case with two brain abscesses, each about one-half inch in diameter.[7] Dr. Emanuel Libman, who has seen probably more cases of subacute bacterial endocarditis than any one else in America, advises us that he has never observed a case with a brain abscess.[8]

Because of the rarity of the occurrence of brain abscess in subacute bacterial endocarditis, and because in most cases previously reported the brain abscesses have been small or microscopic, the following case of subacute bacterial endocarditis with large brain abscess is recorded:

History.—H. S., a schoolboy, aged 15, admitted to the Jewish Hospital of Brooklyn, Dec. 6, 1929, whose family history was entirely negative, had had an attack of poliomyelitis at the age of 9. At 13 he had had scarlet fever, following which he suffered from frequent attacks of sore throat, and was admitted to the St. Marks Hospital in New York, where a diagnosis of rheumatic endocarditis was made. He remained in that institution for one month and was then confined to bed at home for a period of eight months. Tonsillectomy was performed at the age of 14. He did not suffer at any time from precordial pain, dyspnea, palpitation on moderate exertion or edema.

Six weeks prior to admission he had begun to have sore throat, headache and an irregular fever, which reached as high as 103 F. Two weeks before admission, for a period of three days, he had complained of soreness of his finger tips. Five days prior to admission there had occurred a complete left sided paralysis, without loss of consciousness. On the day before admission he had passed deep red urine. He had lost 16 pounds (7.3 Kg.) in the six weeks of his illness.

Physical Examination.—The temperature was 104 F. and the pulse 130; respirations were 44. The blood pressure was 132 systolic and 0 diastolic. The patient was thin, pale and emaciated. He appeared acutely ill and lay in bed on his right side with his head turned to the right. Sordes was present

* From the Meyer A. Rabinowitz Medical Service of the Jewish Hospital.

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3. Nathan, Helmuth: Concerning Viridans Encephalitis, Ztschr. f. d. ges. Neurol. u. Psychiat. **126**: 536-544, 1930.
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5. Nadler, W. H., and Herndon, R. F.: Recurrent Streptococcus Viridans Endocarditis with Unusual Meningeal Complication, Illinois M. J. **31**: 339-340 (May) 1917. This case is also reported by Tice, Frederick: M. Clin. Chicago **4**: 625-631 and **5**: 987-988, 1916.
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7. Gilmore: Personal communication to the authors.
8. Libman, Emanuel: Personal communication to the authors.

on both lips. There were numerous nevi on his body. There were many petechiae in the conjunctivae and over the axillary folds, abdomen and chest; many of these petechiae had white centers. The movements of the eyeballs were normal. Examination of the ear was negative. The tongue was dry. The neck was rigid. Examination of the lung revealed nothing abnormal. The heart was slightly enlarged to the left. On percussion the aorta was not enlarged. There were marked pulsations in the peripheral arteries. The apex beat was diffuse and in the fourth interspace just outside the nipple line. There was a presystolic thrill at the apex. A double murmur was heard over the apex and also over the entire precordium. At the aortic area the second heart sound could not be heard, and the double murmur was especially loud here. The heart beat was regular in rate and force. The abdomen was flat. The spleen was hard, and its edge was felt one finger-breadth below the costal margin. There was tenderness in the left lower quadrant of the abdomen but no spasticity. The liver was not palpable. There was a lower left facial palsy. The tongue protruded to the left. There was difficulty in swallowing. There was a paralysis of the upper and lower extremities on the left side. The knee jerks were weakly present on the left and completely absent on the right side, where there existed a pes cavus due to the old poliomyelitis. There was no Babinski sign nor any of its modifications. Bed sores were developing on the sacrum, the left elbow and the left heel.

The diagnosis was made of old rheumatic heart disease with mitral stenosis and regurgitation and aortic regurgitation, with subacute bacterial endocarditis engrafted on the old rheumatic endocarditis, and with embolization to the middle cerebral artery on the right side, to the meninges, and possibly also to the intestines. The possibility of a subarachnoid hemorrhage was likewise considered. A spinal tap was done and clear fluid obtained under moderately increased pressure. The fluid showed 30 cells per cubic millimeter, consisting of 10 red blood cells, 15 lymphocytes and 5 polymorphonuclear cells. The culture of the spinal fluid was sterile.

Eyeground examination revealed slight blurring of the margins of the right disk. There was a reddish patch below the disk margin, which was probably a hemorrhage. Slight arterial pulsations were present. No other hemorrhages or exudate in the fundi were seen.

An electrocardiogram showed a ventricular rate of 136 and regular sinus rhythm. P was upright in all leads, slightly slurred in lead I. T was upright in all leads. There was sinus tachycardia.

No histiocytes were found in the blood. The Wassermann and Kahn tests of the blood were negative. All the blood cultures, five in number, were sterile. The red cell count on admission was 4,000,000 with 48 per cent hemoglobin, and before the patient died it had fallen to 2,700,000 with 30 per cent hemoglobin. The white blood cells varied from 17,000 with 92 per cent polymorphonuclears to 30,000 with 89 per cent polymorphonuclears. The urine was normal on admission but later showed occasional red cells and a faint trace of albumin. Chemical examination of the blood gave normal figures.

The patient's temperature usually was between 102 and 104 F., showing usually a daily variation of from 2 to 3 degrees. During his course in the hospital he showed repeated crops of white centered petechiae in the conjunctivae and skin. He was treated with sodium cacodylate intravenously and with transfusions, but his condition showed no improvement and he died, Jan. 7, 1930.

Autopsy.—The brain weighed 1,275 Gm. It was extremely pale. There was a subpial hemorrhage 3 by 4 cm. in extent over the left frontoparietal region. The brain was hardened in solution of formaldehyde and later, on section, was found to contain an abscess with pus cells in the right frontoparietal region. There was a definitely organized membrane wall 3 cm. in diameter surrounding this abscess. Unfortunately, because of the action of the formaldehyde, no culture could be made from this pus. The lungs showed early terminal bronchopneumonia. The heart weighed 300 Gm. The pericardial surface was rough and had a thin fibrinous exudate. The atria appeared normal. On the anterior cusp of the mitral valve was a large pedunculated friable vegetation, mulberry shaped. On the posterior cusp, near the margin, was a verrucose, firm vegetation. On the same cusp on the auricular surface was also a similar vegetation. The whole valve was thicker than normal. The chordae tendineae were of normal thickness and not shortened. There was no stenosis of the orifice. The aortic valve presented some rolling in of the edges, which latter were moderately thickened. The tricuspid and pulmonic valves appeared normal. The endocardium showed no changes. The myocardium was of normal color, size and consistency. The foramen ovale was closed. The stomach and intestines showed nothing abnormal. The liver weighed 1,659 Gm. The capsule was smooth and glistening. The consistency was moderately firm. On section, it presented a yellow brown color and was somewhat congested. Microscopically it showed congestion and cloudy swelling. The gallbladder was normal. The spleen weighed 720 Gm. It was moderately firm in consistency. The capsule had lost its glistening appearance. On the surface were numerous small white plaques and one large reddish area. On section the tissue presented a varied appearance. It was for the most part of a light pink color with the malpighian corpuscles standing out rather prominently. Numerous gray strands ran through it. There was a triangular dark red infarcted area in which were seen numerous small white nodules (old infarcts). The pancreas and suprarenals were normal. The right kidney weighed 150 Gm., the left 117 Gm. Their capsules stripped with some difficulty, leaving a smooth surface. There were numerous small hemorrhages, varying in size. On section the markings were somewhat indistinct. The cortex was of normal thickness. In the left kidney was a white firm nodule just below the surface, probably an old infarct. Microscopically, focal glomerular nephritis and a large area of necrosis was observed. The ureters, bladder and prostate were normal. The bone marrow showed an erythrogenic hyperplasia.

The anatomic diagnosis was thrombo-ulcerative endocarditis, pericarditis, chronic interstitial myocarditis, bronchopneumonia, parenchymatous hepatitis, infarction of the spleen and kidney, focal glomerulonephritis, abscess of the brain, and erythrogenic hyperplasia of the bone marrow.

COMMENT

The case here described is one of subacute bacterial endocarditis with a brain abscess 3 cm. in diameter. It is impossible in the present state of knowledge to declare why in some few cases of subacute bacterial endocarditis a brain abscess has developed. There is the possibility that it may be due to an unrecognized mixed infection. Nathan [3] appears to believe that it may be due to a massive invasion of the bacteria. There is also the possibility that, owing to the relative paucity of phagocytes in the brain,[9] the viridans organisms are here able to infect bland emboli and form abscesses, whereas in the abdominal viscera, where phagocytes are more numerous, they cannot do this. All these are possibilities; but at present there is no evidence in favor of any one of them.

Although we have observed many cases of subacute bacterial endocarditis, we have in no other instance noted such high leukocytosis and polynucleosis. If, therefore, we were again to encounter a case of subacute bacterial endocarditis with suddenly occurring hemiplegia and very high leukocytosis and polynucleosis, and if there were no other suppurative lesion present, we should be very strongly suspicious of the existence of a complicating brain abscess.

651 St. Marks Avenue.

9. Gay, F. P., in Jordon, E. O., and Falk, I. S.: Newer Knowledge of Bacteriology and Immunology, Chicago, University of Chicago Press, 1928, pp. 885-886.

The Results of Scientific Investigations.—It has been stated, by some, that science is ruthless, cold and inhuman. Inasmuch as the aim of science is the search for truth, the prosecution of research cannot in its course pay much respect to conventionalities of thought or hold inviolate traditions of any kind. The results of scientific investigations may often oppose and offend current ideas and cherished opinions. Much the same can be said, however, of new methods of expression by great artists. The music of Bach was almost incomprehensible to his generation, and certainly Wagner at first was not accepted with enthusiasm.—Longcope, W. T.: Methods and Medicine, *Bull. Johns Hopkins Hosp.* **50**:4 (Jan.) 1932.

Special Article

CONTRACT PRACTICE *

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Contract practice is not a new development in medical care; it began as an essential feature of many pioneering projects in mining, railroad construction and lumbering; it is now assuming new forms, becoming highly competitive, using unethical methods and involving a large number of physicians.

Ever since men achieved the first stages of civilization, there has been nothing they have refused to do to obtain health when they have been sick. They have been willing to be half drowned, to be buried alive in earth up to their chins, to be pierced with needles and branded with hot irons, to have leeches suck their blood and to swallow vile tasting concoctions—and to pay for all this—in the hope of attaining cure from disease and of regaining health.[1] Now it may be added that many are willing to bargain with the lowest bidder on a contract basis for incomplete and inadequate medical services, and that for only a part of the family, because some solicitor tells them they will receive the best medical care at a ridiculously small sum.

NUCLEUS IS PLANTED FOR CONTRACT PRACTICE

About the middle of the last century, two types of medical practice were developed which were destined to be the forerunners of a dangerous, complicated, commercial medical system. One of these types was the Mutual Benevolent Hospital Association, philanthropic in character, having liberal endowments, extensive hospital properties and hospital staffs of high grade reputable physicians, all organized and maintained for the membership only; the other type was the medical service developed by the railroad, mining and lumbering companies for their workmen employed in places in advance of or apart from communities with medical facilities. The Mutual Benevolent Hospital Associations were organized to provide for their memberships the best obtainable medical services at the most reasonable cost. The mining, railroad and lumbering companies were moved by two factors to provide medical care for their employees: first, because necessary medical services could not be secured otherwise, and, second, to avoid or to minimize the liability that might arise from neglect of medical care and to reduce the loss to the companies in working hours thus affecting production, because of accidents or illness.

The precedent of such plans, developed by the exigency of the situation, the enactment of state workmen's compensation laws and the popular lay revolt against the costs of medical care, are now used as ample justification for the present systems of contract practice. All the contract plans now operating are essentially forms of sickness insurance. A study now being made by the American Dental Association, from which I shall quote briefly, shows how clear is the trend in the field of contract practice toward sickness insurance:

> Workmen's compensation legislation has been an almost invariable forerunner of general sickness insurance. In 1910 no state had such legislation. Today all but four have more or less elaborate systems of protection in this field. There is no agitation for their repeal, and little opposition to their continual extension.

That extension has already made "occupational disease" compensable in several states and more are added annually.[2] The tendency is clearly described in a recent report of the Industrial Commission of South Dakota: "The original idea of the workmen's compensation law was that of helping the injured worker to bridge over his troubles until he was again able to resume his ordinary labor. But by actions of legislatures, courts and commisions it is beginning to approach that of a general plan of health and accident insurance." [3]

About 17,000,000 workers are paid more than $150,000,000 annually under these laws at present, an amount fully comparable to that expended by many European countries on complete systems of compulsory health insurance. Dentists have been brought under this law in many places and in various capacities.

This legislation gains greatly in significance when it is considered as the foundation and framework of future and vastly more extensive systems of insurance, for it now contains nearly all the features of the more extensive European systems to which physicians and dentists most strenuously object. There is little "free choice of practitioner," professional confidence is not respected, there is a mass of lay interference, the tendency to reduce fees to a minimum is already apparent, and charges of undue influence on professional testimony by employers or insurance companies on one side and by malingering employees upon the other are already common.

TYPES OF CONTRACT PRACTICE

The types of contract practice vary according to the organization providing the medical service and the form of contract used. There exist definite conditions under which contract practice is both legitimate and ethical, but these instances cannot be used in defense of unethical, highly competitive and economically unsound methods used by unscrupulous individuals or groups to further commercial or professional avarice.

The type of contract and the services rendered will therefore depend much on the integrity of those who devise and operate the system and are influenced by both the exigencies that call the system into operation and the motives that underlie its operation.

Contract coverage may be one of three types: (*a*) for employment connected injuries; (*b*) for employment connected illness and injuries; (*c*) for injuries and illness which are either employment connected or which may have no relation to employment.

The types of organizations or groups engaged in contract practice are as follows. It is not possible at this time to enumerate all the companies, associations, groups and individuals that would fall in each classification.

A. Large corporations:
   1. Railroads.
   2. Mining companies.
   3. Oil companies.
   4. Logging and lumber companies.
   5. Canneries.
   6. Shipbuilding and allied shipping companies.
   7. Other manufacturing companies.

B. Mutual benefit associations.
C. Hospital associations.
D. Medical groups.
E. Individual physicians.
F. County medical societies.
G. Hospitals.
H. Newspapers.
I. Cooperative groups.

* Read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 16, 1932.

1. Holmes, O. W.: Medical Essays.

2. Stewart, Ethelbert: Occupational Diseases and Workmen's Compensation, Monthly Labor Review, February, 1930, p. 93.

3. Bulletin Association of Casualty and Surety Executives, October, 1930, pp. 9-10.

J. Industrial associations:
   1. Mutual benefit associations.
   2. Trade unions.

K. Lodges.

Many large corporations own and operate their own hospitals. Physicians are employed by contract and the employees are cared for on a monthly payroll deduction basis. Some mutual benefit associations also own their own hospital properties and employ physicians in a manner similar to the large corporations, but all this medical service is maintained at the low monthly pay rate for members only. Because of the limited amount of income from members on such low monthly rates, these associations would soon be obliged to discontinue their service were it not for generous endowments left by members and the profit that accrues from hospital care of the public at regular rates.

Hospital associations are misnomers. In most instances they are merely the business offices of groups having medical contracts for sale. These "associations" usually have a few "staff physicians" on salary, but most of the physicians who care for the contract cases are paid on a "piece work" basis. Not infrequently, these physicians have no little difficulty in securing payment for services rendered and then at the amount allowed by some lay business manager whose business it is to deal with the profession as well as with the employers and the employees. It is not uncommon for these czaristic adjusters to dictate to physicians the extent to which their services shall go in an individual case.

Since some of the best medical groups are doing contract practice, naturally the type of service they render is superior to that given by many of the "hospital associations." Even while engaged in contract medicine, these medical groups claim that they are not satisfied with this type of practice; but their disavowal of the practice lacks sincerity, since they continue to use all the methods of the system to hold present contracts and to get new ones.

Much of the anxiety on the part of the profession over contract practice has grown out of the methods used by individual physicians in the field. For instance, one organization of this type is owned and operated by one physician with a large number of associates operating in many communities. A copy of the contract used by this physician will be found in the Appendix marked T-1.

In one particular instance which comes to mind the owner and operator of the contract plan views medical practice with an extremely cold-blooded business attitude. He appears to have no interest in any form of medical charity; he thinks very poorly of organized medicine; his respect for medical ethics is apparently negligible; he realizes that he is under fire but hopes he will be able to retain his county medical society membership. He thoroughly believes that his system is the only correct one and that all physicians must ultimately solicit business, but he is sure that organized medicine cannot do this. He refuses to give out the details of his plan, stating that it is worth money to him and if described or published would be used by his competitors to his disadvantage. He is honest in the belief that his is the only "scientific medical insurance," but he is operating his system without any supervision by the state insurance department. He admits that his plan would not be successful in agricultural districts and he prefers not to contract with individuals or with other members of the families of employees, since such contracts require too much bookkeeping and the pay is not assured.

Cut the High Cost of Illness!

The Record Offers Its Readers a Cure for

DOCTOR BILLS!

JOIN THE

Record Health Service League

Your subscription to The Record—plus One Dollar Registration Fee—Makes you a member and provides for YOU and YOUR ENTIRE FAMILY medical, surgical and hospital care at prices you can REALLY AFFORD to pay.

The Los Angeles Record has been working for a long time to make an arrangement which would provide lower medical costs for a high standard of medical service. At last we have it. The Record Health Service League has been successful in making a satisfactory arrangement with the Pacific Life Extension and Hospital Service System to provide the highest type of medical, surgical and hospital service to our readers, 24 hours of the day and every day of the year.

Take Your Choice of Two Services:

SERVICE NO. 1

Medical Care at Half the Usual Cost

Service No. 1 assures you and all members of your family the best medical and hospital care in any illness, operation or accident—by competent, chosen physicians, surgeons and specialists—at a fixed scale of fees arranged and approved by the Record Health Service League. These fees are approximately one-half the fees regularly paid by the suffering public.

Your registration fee of One Dollar places this service at your disposal whenever needed.

There is no red tape. In case of illness, you present your identity card where directed, or call a given telephone number. The result is the best medical care.

SERVICE NO. 2

Complete Medical Service at Low Cost

For $1.35 paid monthly in advance to the Pacific Life Extension and Hospital Service System, registered Record subscribers are assured MEDICAL, SURGICAL and HOSPITAL CARE FOR AILMENTS and ACCIDENTS without further charge.

This is the lowest-priced—and best—service of its kind offered by any hospital or medical service organization in California.

Each member who subscribes for this $1.35 per month complete medical service is given a printed agreement setting forth the full benefits to be obtained and a list of physicians, surgeons, hospital and other treatment agencies designated and approved by the Pacific Life Extension and Hospital Service System and the Record Health Service League.

WHO PROVIDES MEDICAL AND HOSPITAL CARE FOR ME when need arises, you ask? The Pacific Life Extension and Hospital Service System—the largest and most successful medical service organization in Southern California. Established several years ago, it has provided highly satisfactory medical and hospital care for many thousands of members, including employes of many large industries in Los Angeles.

THE PACIFIC LIFE EXTENSION AND HOSPITAL SERVICE SYSTEM is a complete medical, surgical and hospital service. Its members are provided this complete care by any of more than 200 leading licensed physicians, surgeons and specialists practicing in the various branches of medicine and surgery. Members may choose from an extensive list of doctors, surgeons, hospital and other treatment agencies. You get this list with your membership card

EVERY RECORD SUBSCRIBER MAY TAKE ADVANTAGE OF THIS REMARKABLE SERVICE. If you are already a subscriber, your agreement to continue having The Record delivered at your home or office for one year makes you eligible for either service offered through The Record Health Service League. If you are NOT a subscriber, you become eligible for League membership and service by agreeing to take The Record by carrier for one year.

NO MATTER WHERE YOU LIVE IN SOUTHERN CALIFORNIA YOU MAY AVAIL YOURSELF OF THIS UNUSUAL SERVICE. Write or call up The Record, TUcker 1121, at any time, and a representative of The Record Health Service League will be glad to explain any detail of the medical and hospital service provided for members.

Reach for Your Scissors Now and Cut the High Cost of Illness by Clipping This Application.

APPLICATION

L.A. RECORD HEALTH SERVICE LEAGUE
612 WALL ST., LOS ANGELES, CAL.

I hereby subscribe for The Los Angeles Record, for one year, to be delivered by carrier at my home, and agree to pay your carrier 45 cents at the end of each month.

For an additional payment of $1 in advance, you agree to register me with the Pacific Life Extension and Hospital Service System, Inc., Ltd., entitling me to either one of the following services provided by that System:

SERVICE NO. 1

Medical, surgical and hospital services, for myself and all members of my family, at the reduced schedule of rates as provided by The Record Health Service League and the Pacific Life Extension and Hospital Service System; or

SERVICE NO. 2

Medical, surgical and hospital service provided in the agreement of the Pacific Life Extension and Hospital Service System, Inc., Ltd., for myself personally, without charge, so long as I pay to the System $1.35 per month, the reduced rate arranged for me by The Los Angeles Record.

It is understood and agreed that my membership in The Record Health Service League, and eligibility for service at the rates quoted under either of the above plans, shall continue only so long as I am a subscriber to The Record.

I select Service No.....
I enclose $1 for registration.
(am)
I (am not) a subscriber to The Los Angeles Record.

NAME.....

ADDRESS.....

CITY..... PHONE.....

To the Subscriber:
If you do not receive your membership card within five days of making application, please notify The Record Circulation Manager, TUcker 1121, 612 Wall Street.

Display advertisement occupying three full columns of a western newspaper early in November, 1931.

From reliable sources it is reported that this physician has stated that his contract practice is only 40 per cent of his entire business. In this instance, as in most contract practices, the exemptions (not covered by contract) and the patients not covered by contract but brought in by contract covered individuals help to increase the gross income. This physician is very inflexible in his attitude toward the organized profession and he is determined to influence employers to demand of the state legislature that the present contract system be retained and protected. This attitude is held by many contract physicians.

In an effort to meet the growing competition of contract individuals and medical groups, one or more county medical societies have devised plans to take contracts as organized bodies. These societies were motivated by the desire to furnish to the low income group a medical service at a small cost, to render the same quality of service as that given their regular fee patients, to offer free choice of physician, and to eliminate unfair competition among the physicians in the community. In attempting to solve the problem, the county society has been drawn into using some of the same methods of contract getting used by other contract groups; viz., the business manager or solicitor. A copy of the type of contract used by one county medical society group will be found in the Appendix marked T-2. It was found impossible to enlist the support of the entire county medical society membership in this project, only about 50 per cent agreeing to the plan.

Hospitals have entered the field of contract practice by assuming the business management of contract solicitation. This form of contract practice is no less devoid of the unethical and undesirable features than the types already mentioned.

A recent venture in contract practice is a plan announced by a western newspaper, a display advertisement of which appeared in an early November, 1931, issue of the paper in question. The advertisement, a reduced reproduction of which appears in the accompanying illustration, says:

Cut the High Cost of Illness!

The [paper] offers its readers a cure for Doctor Bills!

Join the ——— Health Service League. Your subscription to the [paper] plus one dollar Registration Fee—Makes you a member and provides for you and your entire family medical, surgical and hospital care at prices you can really afford to pay.

The [paper] has been working for a long time to make an arrangement which would provide lower medical costs for a high standard of medical service. At last we have it. The ——— Health Service League has been successful in making a satisfactory arrangement with the ——— System to provide the highest type of medical, surgical and hospital service to our readers, 24 hours of the day and every day of the year.

Take your choice of two services:

Service No. 1, medical care at half the usual cost: Service No. 1 assures you and all members of your family the best medical and hospital care in any illness, operation or accident—by competent, chosen physicians, surgeons and specialtists—at a fixed scale of fees arranged and approved by the ——— Health Service League. These fees are approximately one-half the fees regularly paid by the suffering public.

Your registration fee of One Dollar places this service at your disposal whenever needed.

There is no red tape. In case of illness, you present your identity card where directed, or call a given telephone number. The result is the best medical care.

Service No. 2, complete medical service at low cost: For $1.35 paid monthly in advance to the ——— System, registered ——— subscribers are assured medical, surgical and hospital care for ailments and accidents without further charge.

This is the lowest-priced—and best—service of its kind offered by any hospital or medical service organization in the state of ———.

Each member who subscribes for this $1.35 per month complete medical service is given a printed agreement setting forth the full benefits to be obtained and a list of physicians, surgeons, hospital and other treatment agencies designated and approved by the ——— System and the ——— Health Service League.

Who provides medical and hospital care for me when need arises, you ask? The ——— System—the largest and most successful medical service organization in [state]. Established several years ago, it has provided highly satisfactory medical and hospital care for many thousands of members, including employees of many large industries, in [city].

The ——— System is a complete medical, surgical and hospital service. Its members are provided this complete care by any of more than 200 leading licensed physicians, surgeons and specialists practicing in the various branches of medicine and surgery. Members may choose from an extensive list of doctors, surgeons, hospital and other treatment agencies. You get this list with your membership card.

Every ——— Subscriber may take advantage of this remarkable service. If you are already a subscriber, your agreement to continue having the [paper] delivered at your home or office for one year makes you eligible for either service offered through the ——— Health Service League. If you are not a subscriber, you become eligible for League membership and service by agreeing to take the [paper] by carrier for one year.

No matter where you live in [state], you may avail yourselves of this unusual service. Write or call up the [paper], [telephone number] and a representative of the ——— Health Service League will be glad to explain any detail of the medical and hospital service provided for members.

APPLICATION

——— Health Service League at [address]

I hereby subscribe for the [paper] for one year, to be delivered by carrier at my home, and agree to pay your carrier 45 cents at the end of each month.

For an additional payment of $1 in advance, you agree to register me with the ——— System, Inc. Ltd., entitling me to either one of the following services provided by that system:

SERVICE NO. 1

Medical, surgical and hospital services, for myself and all members of my family, at the reduced schedule of rates as provided by the ——— Health Service League and the ——— System; or

SERVICE NO. 2

Medical, surgical and hospital service provided in the agreement of the ——— System, Inc., Ltd., for myself personally, without charge, as long as I pay to the System $1.35 per month, the reduced rate arranged for me by the [paper].

It is understood and agreed that my membership in the ——— Health Service League, and eligibility for service at the rates quoted under either of the above plans, shall continue only as long as I am a subscriber to the [paper].

I select Service No. .....

I enclose $1 for registration.

I (am / am not) a subscriber to the [paper].

Name .....

Address .....

City..... Phone.....

To the Subscriber:

If you do not receive your membership card within five days of making application, please notify the ——— Circulation Manager, [telephone at] [address].

Reach for your scissors now and cut the high cost of illness by clipping this application.

From such a glaring account it would appear that health and medical relief is indeed at the crossroads of the bargain counter. But to those who know it is perfectly clear that the rates quoted are utterly inadequate to provide any medical services except the barest first aid for minor afflictions. The proposition is thoroughly unsound economically since to provide complete medical services at such prices would mean swift bankruptcy for any honest and conscientious individual or group.

The most recent venture in contract practice is announced from another section of the country where certain groups of cooperatives in a certain industry are being led into a scheme for cut rate medical care by a physician not in active practice who defies all medical organizations to interfere with his experiment. This plan is so new that no details of its working can be obtained; suffice it to say that the physician promoter flatly refuses to take into his confidence for council, assistance or guidance the local medical societies in the territory over which the scheme is to operate.

MUTUAL BENEFIT ASSOCIATIONS AND TRADE UNIONS

Industrial mutual benefit associations and trade unions have not strongly entered the field of contract practice. These organizations have, for the most part, confined their interests in and efforts toward the protection of the income of their members. In some instances, however, sick benefit funds have been estab-

lished but participation in these funds is usually limited to those cases not entitled to payments under the workmen's compensation laws.

A study of mutual benefit associations recently made by Brundage and reported in *Public Health Reports* shows that an appreciable number of these associations provide some medical service and care to their members.

LODGE PRACTICE

Lodge practice, as usually found, consists in the employment of a physician by a local fraternal organization to serve its members on contract, by salary or for a stipulated sum per member annually. Medical and surgical services and hospital care are provided for members on the basis of a monthly membership fee. In most instances, medical and hospital benefits provided by the lodge for its members are contingent on the member using the physicians or hospitals approved and designated by the lodge. It is not known what considerations govern in the selection of physicians and hospital facilities.

Lodge practice assumes its largest proportions in the care of tuberculous and the aged or retired members. Several large institutions for these purposes have been established for many years. Tuberculosis sanatoriums are also maintained by some of the trade unions.

METHODS OF OPERATION AND QUALITY OF SERVICE

Throughout the contract proponent groups there exists a definite fear or obsession lest the organized medical societies object or interfere with contract operations. Likewise, there is a craftiness in business dealings and a circumvention of accepted ethics in many contract plans.

As long as contract practice remained in the field of practical necessity, it created little or no alarm. But, as the exigencies of pioneer projects passed, the emergency methods of medical care were not discarded but were retained to become the basis of new schemes to compete with regularly established medical practice. Workmen's compensation laws were passed and funds became available with which to pay for the medical care of the injured employee. These funds, which assured the payment of fees for hundreds of thousands of potential patients, became the envy of the conniving contract cliques. At this point a method was introduced in contract practice similar to pressure selling in the business world.

In the medical profession, in which no ethical individual advertises, he who first adopts the practice, although by so doing he becomes unethical and is marked a quack, wins interest at once with very little expenditure. Certain types of contract schemes would not be successful if contract physicians were obliged to wait until business and industry sought them out for their particular services. Therefore, an advertising method was adopted to carry the message, at first, to organizations having a large number of employees, later to small industries, laundries, garages, business houses, apartment houses and even individuals. The business agent, manager, capper, adjuster or solicitor thus became the advertising agent of the contract physician or group. With the incorporation of this element into contract practice methods, pressure of getting business became greater, new groups or associations were formed to enter the contract field, and definite unfair competition with private medical practice was created. It was then a short and easy step to underbidding and misrepresentation to get contracts.

Although it is claimed that the quality of service is as good as can be had anywhere, there is sufficient evidence to show that this is not universally true. Under some contracts, patients are treated by remote control, at long distances. Patients often prefer to pay the family physician to manage a serious illness or to do an operation rather than to accept the services of the contract physician or staff. It is charged that some contract physicians do as little as possible for their contract patients since to treat them well would encourage them to demand more treatments, calls or medicine than are considered necessary by these contract physicians.

It is appropriate here to quote the following statements taken from a report on contract practice prepared by a special committee of the ——— County Medical Society appointed to study the question of contracts operating under the state law and to define the position of the medical profession with respect to this subject:

> Early in 1930 the ——— County Medical Society ordered a fact finding investigation and the initiation of efforts to correct certain conditions which were known to have progressed to the point of having become public health problems.
>
> Official action of the medical society limited the activities of the committee to three specific problems:
>
> 1. Certain contracts under the ——— law.
> 2. Certain so-called medical contracts executed by doctors contracting under the ——— law.
> 3. Commercial solicitation of professional business, particularly to secure the above contracts, either by physicians themselves or by lay agents hired direct or through corporate agencies.
>
> The ——— law has been in operation thirteen years. Conceived in altruism toward the workmen to ease the financial burden incident to the surgical care of injuries, it has made possible the exploitation of the medical aid fund by contract doctors for profit to the possible tragic detriment of the injured, a condition contrary to good financial policy and good public health policy.
>
> The law legalizes contracts and provides that the employer and employees in conference may choose the contract alternative. It does not provide nor does it specifically prohibit, nor was it the intent of the law that doctors should take the initiative, go themselves or send their hired lay representative to employers and groups of employees to solicit the contracts as they have done and are now doing.
>
> Under the terms of the contracts as executed by contract doctors, ten cents on the dollar of the medical aid trust fund goes to the state for administrative expense; ninety cents on the dollar, at the time of collection from labor and industry, is turned over to the contract doctor. He is custodian of the fund; he administers it, determining what services shall be rendered, including his own professional services, hospital, nurses, drugs, appliances, and even professional consultants. He disburses for all services and keeps as his own the unexpended portion.
>
> Therein lies the censurable financial policy, and therefrom arise the possibilities of detriment to public health.
>
> In exploiting financial possibilities for personal gain under the law, contract doctors sometimes reduce services to injured workmen to the point of inadequacy and inefficiency. Under their administration of the fund a leg may be amputated to save the hospital expense incident to effort to save the leg, or workmen with fractures and serious internal injuries may be allowed to succumb without effort to determine and treat the internal injuries because of the hospital expense entailed during repair of the fractures in case life is saved. They hire laymen to solicit the contracts, thereby diverting a considerable portion of the fund to channels of commercialism, and as a corollary to the ——— law contracts, contract doctors are carrying on a wildcat health insurance business. They are known to have paid up to 20 per cent of the gross revenue derived from the contract and up to $600 a month to lay agents through whom the contracts were secured. Through the use

of hired lay agents they secure contracts remote from their home town, then sublet to local doctors for 25 per cent of the total revenue, their sole service being to secure and to sublet the contract, or they hire the cheapest available local doctor to render service under the remote contracts and often require him to pay them 50 per cent of the gross revenue derived from all private practice developed while in their employ.

In some instances a local physician has secured the necessary signature to the petition intending to take over the contract for the industry. Remote organizations hearing of the fact, through influence they could bring to bear, caused word to be sent to the mill that the employees should rescind their signatures immediately or if necessary every employee would be fired and an entire new crew hired. In these instances the workmen contributed 50 per cent of the revenue and under the law are supposed to have equal authority with the employer regarding who shall do their medical work under the law. A remote group of physicians is so intrenched that they are able to take the bread and butter from the mouths of laborers, their wives and children unless the medical aid contract is awarded to them. The workmen have grievances on this score and about the adequacy and efficiency of the services to the injured, but they dare not protest.

The groups of workmen included under the ——— law comprise convenient groups to bring into the wildcat health insurance activities. For from seventy-five cents to one dollar and fifty cents a month, contract doctors agree to render all professional services and pay all costs incident to the care of accidents not included under the ——— law and all sicknesses with specific limited exceptions. This contract is a limited health and accident insurance policy with all the evil possibilities of wildcat insurance, to wit:

1. The contract doctor is the insurer.
2. The insurer is unsupervised as to financial resources, and as to performance under his contract.
3. He determines the rates, administers the insurance fund, determines what services shall be rendered, renders that service personally or through agents in his hire, and retains the unexpended portion.

Any insurance actuary will testify to the fact that the rate is utterly inadequate; every man operating would go bankrupt in a short time if he fulfilled the terms of the contract. Any unprejudiced physician will testify to instances of failure of the insurer to fulfil his contract.

A man with a perforating ulcer of the duodenum went nine times to the contract doctor. The eighth and ninth times he was so ill his son had to take him after refusal of the contract doctor to call at the home. No adequate history was obtained, absolutely no examination was made. He was given a box of pills, some ten cents in value, which proved so laxative that their use had to be discontinued. He then consulted his family physician, who rendered proper service, including hospitalization and operation, incurring some $400 expense. The contract doctor wilfully and negligently evaded financial obligation, the professional responsibility and effort to save for himself the cost of hospitalization and special nurses.

The ideals and ethics of the medical profession have through all time paralleled very closely the ideals and ethics of the legal profession. The ——— act of the state of ——— specifically prohibits the use of hired lay solicitors for securing professional work for lawyers. It is declared to be against public policy. The ——— act of the state of ——— does not contain any similar clause, although seventeen states and territories do have laws prohibiting the practice with revocation of license as the penalty.

CLOUDING OF CONTRACT CLAUSES

Not all patients having contract privileges understand the coverage or exemptions of the contract. Under the pressure of increasing competition, the agent or solicitor may have misrepresented the coverage when making the sales. The patient suffers from these fraudulent methods when he finds that conditions for which he presents himself for treatment are not included in the contract and therefore he must pay for the treatment or seek a private physician. Almost all types of contracts, except those used by the cooperative groups and newspapers, cover the industrial workers only. It is claimed that there is too much bookkeeping to warrant taking contracts with individuals not on a payroll or members of the employee's family. Whatever the advantages claimed for strictly industrial contract practice, these benefits cannot accrue to women, unless they are employees, and in no case to children.

PREVENTIVE MEDICINE DISREGARDED

In only one instance that has come to our notice is any attention ever given, under contract coverage, to preventive medicine. Generally speaking, contract practice is essentially curative medicine and the person who wishes to keep well by such means as the periodic health examination must still use his family physician or pay the contract group. Even though preventive medicine were to be practiced in contract medicine, two groups with which prevention is most important and effective, viz., women and children, would not be touched except for the few women who might be employed in the contract covered groups.

FREE CHOICE OF PHYSICIAN A MISREPRESENTATION

It is claimed that some contract plans offer the individual covered a free choice of physician. It is possible that there are such plans contemplated but, as far as is known at present, there is no plan which includes all the physicians in a community. It is usually stipulated that such free choice of physician is limited to those physicians who are associates of or who are approved and designated by the contract holders. Use of the term "free choice of physician" is, under these conditions, definitely misleading if not fraudulent misrepresentation.

EFFECT OF CONTRACT PRACTICE ON THE PUBLIC

Contract practice has created in the minds of both the individual and the public a false impression of physicians and medical service. In contract practice not only the financial or business but also the intimate professional relationships between patient and physician are changed. These relations, which for centuries have been peculiarly close and personal, are now robbed of that intimacy and friendliness of understanding which characterizes medical practice.

Now contract advocates come out with a new, high powered model of medical service characterized by mass production methods, short cuts and abbreviations in procedure which benefit the physician or group not the patient, cold impersonality, long distance remote control and cash-in-advance payments.

There is little occasion for surprise that the layman who comes in contact with such a pseudoprofessional process and who analyzes it should consider the physician in the scheme a mere robot and his treatment procedures only stereotyped mechanical mimicry.

Most types of contract practice are devised for the promoters and not for the patients. It is because of this fundamental fallacy that confidence in the profession is disturbed. Nor is the quality of medical service the only element that influences profoundly the establishment and maintenance of confidence. The rates charged for contract work imply that all other medical fees are unreasonably high. When the truth is known, contract practice is not a complete coverage. Were it not for the exemptions, the dodging of responsibility and the almost 100 per cent collection guarantee, the holders of contracts would be forced to discontinue the practice because of its economic impracticability.

Contract rates also imply that physicians have a sliding range of fees. Medical and surgical treatment are indefinite scientific services measured in nature and amount according to the demands of the individual. Medical service, therefore, is not comparable to commodities sold by units of measure or weight, which are always constant. The bidding and underbidding and bargaining and adjusting practiced in securing contracts places medical services on a level with ordinary merchandise.

CONTRACT PRACTICE DEFINED

This brief discussion, with the few examples cited, is intended to stimulate an earnest, exhaustive examination of the methods of providing medical service rather than to describe completely the complex and disturbing system known as contract practice.

The Judicial Council has defined "contract practice" in the following words:

> By the term "contract practice," as applied to medicine, is meant the carrying out of an agreement between a physician or group of physicians as principals or agents and a corporation, organization or individual, to furnish partial or full medical services to a group or class of individuals for a definite sum or for a fixed rate per capita.

This definition, I believe, will be found to cover every form of contract practice. It will be observed that in the definition no mention is made of the ethics of the practice for the reason that contract practice per se is not an ethical question, ethics being concerned with the form of the contract and the conditions under which it is made. That there are many conditions under which contract practice is not only legitimate and ethical, but in fact the only way in which competent medical service can be provided, becomes evident on analysis. For instance, when large numbers of workmen are employed remote from urban centers, as in some mining or logging camps, efficient medical service can be secured only by contracting with some competent physician to do the work. Certain industrial situations arise wherein large employers of labor are compelled by law to provide medical services for their employees under certain conditions, and this at times can be secured only by some form of contract. A community too small to offer sufficient inducements to a competent physician to locate therein may secure one by some form of contract or agreement as to compensation. It is perfectly evident, therefore, if one is to judge whether a contract is ethical or not, that the form and terms of the contract must be known, as well as the particular circumstances under which it is made. As there is such a great variety of contracts, and as their form and the circumstances under which they are made differ so widely, it seems impossible, or at least inadvisable, to attempt to define what constitutes an ethical contract. Each case must be judged on its own merits after all the facts pertaining thereto are known. There are certain points, however, that may be formulated which, when present, one or more of them, definitely determine a contract to be unfair or unethical. These may be stated as follows:

1. When the compensation received is inadequate, based on the usual fees paid for the same kind of service and class of people in the same community.
2. When the compensation is so low as to make it impossible for competent service to be rendered.
3. When there is underbidding by physicians in order to secure the contract.
4. When a reasonable degree of free choice of physicians is denied those cared for in a community in which other competent physicians are readily available.
5. When there is solicitation of patients directly or indirectly.

In the interpretation of the rules of ethics as applied to the practice of medicine: (1) By the word "practice" is meant the performance or application of medical knowledge; (2) by "solicitation" is meant to bespeak professional patronage by oral, written or printed communications either directly or by an agent; (3) by "patient" is meant any person ill or otherwise.

SO-CALLED HOSPITAL AND HEALTH ASSOCIATIONS

In its report to the House of Delegates at Philadelphia, the Judicial Council gave consideration to the ethical and economic status of so-called hospital and health associations, controlled by groups of laymen, or by individuals, offering medical and hospital service to any who will buy "membership" and pay a nominal sum each month as "dues."

The Judicial Council's report states: "Such schemes have been put into operation in various places and have failed within a few weeks or months because of inadequate income or because of failure to render good service. The Judicial Council has regarded these schemes as being economically unsound, unethical and inimical to the public interest.

"Within the last year, (1930-31) some community hospitals have announced their intention to provide medical, surgical and hospital service to families on a flat rate basis. In at least one instance, such service has been offered to families for $35.00 a year, irrespective of the number of members in such families. In most instances, certain exceptions are made in that persons with chronic diseases are not entitled to receive the benefits of the plan and obstetrical service is not supplied without additional compensation. The members of the Judicial Council doubt that it is wise to lead the people in any community to believe that all necessary medical and hospital service, even though chronic diseases and obstetrical care be excepted, can be provided for the average family for $35.00 a year. In the cases presented to it the Judicial Council has advised against adoption of such plans by community hospitals because it is believed that they are not economically sound in that they may be unfavorably affected by conditions entirely beyond control under which contracts cannot be fulfilled. There are other aspects of the matter that readily present themselves for consideration involving the interests of physicians in the community who cannot participate in such plans."

With these definitions and explanations it should not be difficult to determine the ethics of any type of contract practice. Personal interests and professional advantages must be eliminated when judging the merits of each plan; the welfare of patients, the integrity and competence of those operating the plan, and the method and adequacy of meeting the medical fee should receive first consideration.

TIME FOR THOROUGH INVESTIGATION AND MODIFICATION

The organized profession has no desire to obstruct reasonable and honest efforts to provide the best medical care possible to persons receiving low incomes. In examining the methods now being promoted to accomplish this end, it is essential that the welfare of the individual be kept always foremost.

It is believed that the success of any system must be predicated on the separation of the medical service rendered by the profession and the collection and administration of funds with which to pay for the service. Furthermore, it is believed that the practice of requiring physicians to certify to cash benefits must be modified or entirely eliminated. The physician's chief interest and duty should be in the care appropriate to returning his patient to normal health as soon as possible; his is a service benefit to the patient and he should not be made the "goat" in passing judgment by certificates or otherwise on cash benefits in which his patient may share.

Since contract practice is essentially a form of insurance benefit, it becomes necessary to consider well the method of certifying incapacity for work in any modification of the present system.

It is well, also, to consider whether we are undertaking, in the preparation of physicians, to produce a brand of professional attainment which we shall not be able to use because of the cost. Is the medical profession entering an era of transition or must it develop a changed method of practice to meet changing social trends?

Is the culmination of centuries of development, research and refinement in medicine to become a mere mechanical manipulation controlled by a few nonmedical managers or shall the medical profession perfect its own methods of providing sound, scientific service at prices people can pay?

SUMMARY

Although there are many details of contract practice which deserve much more detailed description and comment than is possible in this report, it may be stated that contract practice

1. Took its origin largely from necessity;
2. Has been legalized, in certain places by state statute;
3. Under certain conditions and in some forms is both ethical and legitimate;
4. In general, has become highly commercialized and competitive;
5. Is largely limited to the pay roll class;
6. Does not, in most cases, extend its provisions to women and children;
7. Concerns itself, almost without exception, to curative medicine and does not include preventive measures;
8. Shows no interest in public or individual welfare;
9. Furnishes medical care which is often inferior in character;
10. In many instances is characterized by underbidding, subletting, misrepresentation and racketeering;
11. Is economically unsound in many of its present forms;
12. Is essentially sickness insurance usually not supervised or regulated;
13. Is often used by the operators thereof to influence legislation in favor of extension of the plan;
14. In many of its present forms, lowers the confidences of both the individual and the public in the medical profession;
15. Has some features that deserve refinement and extension and others that are unethical and dangerous and should be abolished.

535 North Dearborn Street.

APPENDIXES

The following appendixes are examples of some of the contracts to which reference has been made in the foregoing article. The form and wording of the contracts are based on information that has been received by the American Medical Association and documents on file in its headquarters.

APPENDIX T-1

THIS AGREEMENT, entered into between THE ——— CLINIC of ———, party of the first part, and ———, of ———, party of the second part:

WITNESSETH: The party of the first part in consideration of the payment by the party of the second part of the sum of money herein mentioned hereby agrees to furnish, perform, and render to the employes of the party of the second part the following medical service:

HOSPITAL SERVICES: Care in a ward bed of the ——— or ——— General or ——— Contagious Hospital as long as necessary, but not to exceed six months, for such conditions as are ordinarily accepted by the management of aforesaid hospital. Private room and private nurse in necessary cases will be furnished at the discretion of the party of the first part.

Operating room, laboratory work, plaster cast, x-rays and all drugs and medicines, will be furnished while at the hospital.

SURGICAL SERVICES: All surgical services for operations or injuries not provided for under the State Compensation Act will be furnished.

SICKNESS: All diseases, including contagious diseases, such as smallpox, diphtheria, scarlet fever, etc., will be taken care of at the above mentioned hospitals, or at home, or our office.

ADDITIONAL SERVICE: All medicines, drugs, prescriptions at authorized drug stores, crutches, braces, surgical belts, dressings, plaster casts, and splints will be furnished. All necessary laboratory work, x-rays, including dental x-ray, and all examinations for glasses (but not including glasses), will be furnished. Insulin will be furnished for a period of six months.

House calls when necessary will be made.

Ambulance service in necessary cases will be furnished.

A physical examination, including dental examination and x-ray of teeth when necessary, will be given free of charge to the employees and prospective employees when desired by the employer.

First aid training will be given to the safety men of the firm at stated intervals. Necessary first aid kits and supplies will be furnished.

EXCEPTIONS: Venereal diseases, conditions peculiar to sex, and conditions existing before commencing to pay medical fees under this contract.

GENERAL AGREEMENTS: Party of the first part agrees to at all times maintain a staff of at least a Major Surgeon, Physician, Eye, Ear, Nose and Throat Specialist and a Dentist.

Complete x-ray, physio-therapy, and laboratory departments and 24-hour telephone service will be maintained.

The party of the second part agrees to notify the party of the first part of any sickness or injury requiring medical or surgical services. In no event will the party of the first part pay for services of any physician or surgeon other than those designated by said party of the first part, nor be liable for or pay for any services, bills or expenses, unless authorized and approved by the party of the first part.

When deemed necessary by the party of the first part, services of a specialist to be designated by said first party will be furnished.

PAYMENTS: That the said party of the second part shall collect from each of its employes the sum of ten cents per day for the first ——— days of each month or any fraction thereof that each man in their employ works, and that the moneys so collected is a trust fund as provided by Chapter 136 of the Session Laws of 1929, and that the second party shall hold same in trust and pay same to the party of the first part on or before the 20th day of the month following collection.

This contract shall become effective ——— and continue for a period of ——— years.

THE ——— CLINIC,
Party of the First Part,
By ——— .
———, Party of the Second Part,
By ———.

APPENDIX T-2

THIS AGREEMENT, made this first day of ———, 193, between the ——— COUNTY INDUSTRIAL MEDICAL AND SURGICAL SERVICE BUREAU, INC., of ———, party of the First Part, and ———, Party of the Second Part:

WITNESSETH:

HOSPITAL SERVICE:

That in consideration of the prompt payment by said Party of the Second Part of the amount hereinafter set forth, said Party of the First Part agrees to furnish medical and surgical treatment to those employes of said Party of the Second Part who may require same. Such services and care to be prompt and efficient, without discrimination or favoritism, and to cover injuries occurring at all times not covered by the First Aid Law, and illness, with exceptions as hereinafter noted.

Said treatment to consist of medical and surgical attendance, including operations, drugs, medicines, nursing, bed and board in a ward of the

——— General Hospital, or ——— Hospital (at the option of the patient), in the City of ———. The use of an ambulance will be allowed when necessary. Said service and treatment not to exceed ninety days (accidental injuries and surgical operations excepted).

NON-HOSPITAL SERVICE:

In the event of any employee or said Party of the Second Part needing the services of a physician, but not needing hospital care, said Party of the First Part agrees to furnish treatment at the office of the physician chosen or at the home of the employee if necessary. Said treatment to include all necessary drugs, medicines, dressings, etc. Prescriptions will be filled free of charge at drug stores designated. Said treatment and service not to exceed ninety days (accidental injuries and surgical operations excepted).

Eye injuries and diseases of the eye shall receive the immediate attention of an eye specialist.

PAYMENTS:

The employees of said Party of the Second Part shall be divided into two groups as regards payment.

The first group shall include all those employees who come under the State Medical Aid Law, and who are covered by the First Aid contract which is a joint contract herewith. The Party of the Second Part agrees to pay to the Party of the First Part for each employee of the group, the sum of ——— per month, which together with the amount provided in the First Aid Contract, shall constitute full payment.

The second group shall include all those employees who do not come under the provisions of the State Medical Aid Law. The Party of the Second Part agrees to pay the Party of the First Part for each employee of the second group, the sum of ———.

All payments to be made on or before the 15th of each month for the pay-roll of the previous month.

The Party of the First Part reserves the right to inspect the pay-roll of said Party of the Second Part to ascertain the number and identity of employees. The said Party of the First Part shall not be held liable for treatment under this contract while said Party of the Second Part shall be in default of any monthly payment.

EXCEPTIONS:

Illness not common to both sexes; illness or disability caused by or received while insane; injuries incurred while fighting, rioting, or otherwise violating the law; caused by or resulting from the use of narcotics or intoxicants; venereal diseases and tuberculosis are not entitled to care or treatment under this contract.

GENERAL AGREEMENTS:

The employees of said Party of the Second Part shall be entitled to select any physician, surgeon or specialist, who is a member of the Bureau, a list showing said membership to be posted at the place of employment.

The party of the first part shall not be liable for the bill of any physician who is not a member of the Bureau.

Any employee entitled to medical attendance or hospital care, shall present to his physician an order for treatment properly filled out and signed by some one representing said Party of the Second Part with authority to issue same.

Employees entering the hospital must comply with the rules and regulations thereof and the orders of the physician in charge of the case and in case of their failure to do so, they may be excluded therefrom and shall not be entitled to further services hereunder.

Said Party of the First Part shall not be held liable for treatment of any injury or sickness existing prior to the employees entering the employment of said Party of the Second Part, or before commencing to pay medical dues. Said Party of the First Part shall not be held liable for treatment of sickness or injury after the termination of this contract, or after the patient has left the employ of said Party of the Second Part.

Said Party of the First Part shall pay for all x-ray pictures when authorized. Appliances such as glasses, atomizers, rubber stockings, and plates, shall not be paid for by the Party of the First Part.

This contract is a joint contract with the State First Aid Contract of even date herewith between the parties hereto, and shall terminate jointly with said First Aid Contract in case of legislative change, or it may continue from year to year, and may be canceled by either party giving thirty days' written notice to the other party of its intentions so to do.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed in duplicate by their proper officers on the day and year first above written.

By ———, Party of the First Part.
By ———, Party of the Second Part.

APPENDIX L R-1

Copy of Identification used in plan 1
Personal Identification Card
for members of
——— HEALTH SERVICE LEAGUE

This is to certify that the bearer, whose name is signed hereto, is a member of The ——— Health Service League, and as such is entitled to the benefits of the special rates for medical, surgical and hospital services by physicians and surgeons and other treatment agencies provided by The ——— System, for bearer and family.

It is understood that in consideration of the special arrangement, the bearer is to pay cash for services or comply with the credit requirements of the respective systems.

It is further understood that the bearer's membership in The ——— Health Service League, with accompanying benefits, is contingent upon his remaining a subscriber to The ——— for one year from this date.

Date ———.

Member's Signature ———.

APPENDIX L R-2

APPLICATION FOR "DESIGNATED AND APPROVED" PHYSICIAN & SURGEON OF THE ——— SYSTEM, ———, ———.

Date ———, 193—.

TO ———

——— System, Inc., ———.

I hereby make application for appointment as one of your "designated and approved" physicians and surgeons.

I declare that I am a graduate, licensed, registered physician and surgeon in the State of ———.

I further declare that I am now or my qualifications are such that I am eligible to become a member of the medical society in the county in which I reside.

I agree to faithfully fulfil my professional obligations to my patients to the best of my ability and to cooperate with the instructions, rules and regulations of your "System."

I understand that I am to charge for my professional services in accordance with your approved fee schedule, which is based upon fees the same as or similar to those as set forth in that which is generally referred to as the ——— Compensation Fee Schedule.

I graduated from ——— Medical School in [year].

Signed ———, M.D.
Office Address ———.
Office Telephone Number ———.
Residence Address ———.
Residence Telephone Number ———.

City ———.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

DIPHTHERIA IMMUNITY TEST (SCHICK TEST) (See New and Nonofficial Remedies, 1931, p. 383).

Eli Lilly & Company, Indianapolis.

Diphtheria Toxin for Schick Test, Diluted Ready for Use-Lilly.—A diphtheria toxin diluted with physiological solution of sodium chloride containing 0.1 per cent gelatin and having a p_H of 7.8 to 8.0. The diluted toxin is of such strength that 0.1 cc. (one dose) given intracutaneously constitutes one-fiftieth minimum lethal dose for a guinea-pig of 250 Gm. weight. It is marketed in packages of one vial containing sufficient for ten tests (V-926), and in one vial containing sufficient for 100 tests (V-928).

NORMAL HORSE SERUM (See New and Nonofficial Remedies, 1931, p. 346).

Lederle Laboratories, Inc., Pearl River, N. Y.

Normal Horse Serum (1:10 Dilution) for the Conjunctival Test.—Normal horse serum one part, diluted with physiological solution of sodium chloride nine parts, and containing 0.4 per cent chlorbutanol. Marketed in packages of one vial with dropper outfit. To determine hypersensitiveness to the proteins of horse serum, one drop is placed in the conjunctival sac.

SCARLET FEVER STREPTOCOCCUS ANTITOXIN (See New and Nonofficial Remedies, 1931, p. 353).

The Gilliland Laboratories, Inc., Marietta, Pa.

Scarlet Fever Streptococcus Antitoxin (Refined and Concentrated).—It is prepared by the method of Drs. Dick under U. S. patent 1,547,369 (July 28, 1925; expires 1942) by license of the Scarlet Fever Committee, Inc. The serum is concentrated by the method employed in concentrating diphtheria antitoxin. Marketed in packages of one syringe containing 2,000 units (prophylactic dose), and in packages of one syringe containing 10,000 units (therapeutic dose).

TRICHLOROETHYLENE. — Trichloroethylenum. — Trichlorethylene.—$CHCl:CHCl_2$.—1-chloro-2-dichloro-ethylene.

Actions and Uses.—The actions of trichloroethylene have not been investigated comprehensively, and it was introduced into therapeutics following some observations on man. Trichloroethylene appears to have a selective action on the sensory endings of the trigeminal nerve, whereby it affords relief in trigeminal neuralgia, but it is not clear that the action even of therapeutic doses is limited to these endings, and different individuals seem to show rather wide differences in susceptibility to this action; hence the dose necessary to afford relief varies correspondingly. Therapeutic doses sometimes cause transitory giddiness, with lassitude, distress, palpitation and nausea. Large doses cause narcosis, and excessive doses cause death. There was no perceptible injury to the lungs, heart or liver after narcosis repeated several times in the dog, but there was slight hyperemia of the gastric mucous membrane and marked reddening of the duodenum. The liquid is irritant; hence it should not be allowed to come in contact with the nose when the vapor is inhaled.

Dosage.—Fifteen minims by inhalation, to be repeated after a few minutes if necessary; but it appears probable that not more than 60 minims should be inhaled within twenty-four hours when it is used for any considerable period of time.

Trichloroethylene occurs as a clear, colorless, mobile and volatile liquid, possessing an odor similar to that of chloroform. It is miscible with ether and very soluble in alcohol; it is practically insoluble in water. The specific gravity is from 1.458 to 1.460 at 25 C. The refractive index is from 1.4770 to 1.4780 at 20 C.

Transfer 25 cc. of trichloroethylene to a distilling flask. Determine the distillation range according to Method I of U. S. Pharmacopeia X. Ninety-five per cent distils over at from 86 to 88 C. (corrected) at 760 mm. The refractive index of the distillate is the same as that of the material before distillation.

Transfer 5 cc. of trichloroethylene to a glass stoppered cylinder, add 5 cc. bromine water and shake the mixture vigorously at intervals of fifteen minutes: at the end of an hour a white turbid solution forms in the lower layer. Agitate gently 5 cc. of trichloroethylene with 2 cc. of silver ammonium nitrate solution in a narrow glass stoppered cylinder of from 10 to 15 cc. capacity: no turbidity is observed in either layer at the end of ten minutes (*acetylene*).

Agitate 20 cc. of trichloroethylene with a 50 cc. portion of water and repeat, using a 25 cc. portion of water; transfer the combined aqueous layer to a flask and add to the aqueous solution two drops of methyl red indicator solution: if the color of the solution is yellow, not more than 0.1 cc. of tenth normal hydrochloric acid is required to assume a pink color; if the color of the solution is pink, not more than 0.1 cc. of tenth normal sodium hydroxide is required to assume a yellow color.

Agitate 10 cc. of trichloroethylene with 25 cc. of water and allow the liquid to separate completely. Separate 10 cc. portions of the aqueous layer are affected as follows: No turbidity is noted five minutes after the addition of 0.1 cc. of nitric acid and 0.1 cc. of silver nitrate solution (*chlorides*); no blue color is observed after the addition of 0.1 cc. of potassium iodide test solution and 0.1 cc. of starch test solution (*readily oxidizing substances such as free chlorine*).

Add 0.1 cc. of alcohol to 5 cc. of trichloroethylene: a turbid solution is formed (*distinction from chloroform*).

Evaporate 25 cc. of trichloroethylene in a platinum or porcelain dish on a steam bath and dry to constant weight at 100 C.: No weighable residue is obtained.

Trichlorethylene-Calco.—A brand of trichloroethylene-N. N. R.

Manufactured by Calco Chemical Co., Inc., Bound Brook, N. J. No U. S. patent or trademark.

Tubes Trichlorethylene-Calco, 1 cc.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary

FERRO-COPRAL TABLETS NOT ACCEPTABLE FOR N. N. R.

Ferro-Copral Tablets, proposed for use "whenever iron is to be used in the treatment of anemia," were presented for the Council's consideration by Brewer & Co., Inc. Each tablet is stated to contain: saccharated ferric oxide-N. F., 1 grain; manganese citrate, 10 grains; copper proteinate, one-fourth grain; cocoa and sugar q. s., 16 grains. The copper proteinate is stated to be prepared by interaction of egg albumin and copper citrate and is stated to contain from 4.6 to 4.7 per cent of copper (Cu).

Brewer & Company, Inc., submit no evidence of clinical trials carried out with their product. In the submitted advertising the firm emphasizes anything that favors the use of iron, copper and manganese, citing evidence dealing with animal experiments and some cases of clinical trials with copper and iron which do not constitute acceptable evidence for the value of the administration of copper and iron or of copper, iron and manganese. While reports of experiments have been published indicating the value of copper when added to a copper free diet, these do not prove that it has any value when added to ordinary diets that already contain copper. The latter is indeed improbable since it is necessary to take extreme precautions to exclude copper from foods in order to demonstrate that its addition has any effect. The evidence cited by the firm does not constitute conclusive proof of the value of such a product as Ferro-Copral Tablets containing iron, copper and manganese, and the implied claim that this combination is more efficacious than iron alone must be held an unwarranted therapeutic claim until positive clinical evidence for the value of the mixture over simple iron preparations becomes available.

Because of lack of originality, a proprietary name cannot be recognized for a mixture of saccharated ferric oxide, manganese citrate, and copper proteinate; the name "Ferro-Copral" is therefore objectionable.

The Council declared Ferro-Copral Tablets unacceptable for New and Nonofficial Remedies because it is marketed under a nondescriptive proprietary name and because the claims made for it are unwarranted.

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

CLOVERDALE MINERAL WATER (CARBONATED)

Manufacturer. — Cloverdale Spring Company, Newville, Cumberland County, Pa., and Baltimore, Maryland.

Description.—A bottled highly carbonated spring water of very low mineral content; free of pathogenic micro-organisms.

Manufacture.—The water is pumped from Cloverdale Springs through a wrought iron pipe line to the bottling plant and discharged into a glass lined tank, from which it is run through three different filters: a bed of fine sand, artificial stone, and five white filter papers. The sand filter is treated with chlorine solution each week and is inspected several times a month to assure that it is in good condition; if not, the sand is removed, washed, treated and replaced. The stone filter is treated with chlorine solution at least once a week. The filter papers are changed every day. The paper filters act as a check on the other filters and come off clean each day. The filtered water is refrigerated over block tin or german silver coils to 1 C., is carbonated to contain 4.7 volumes of carbon dioxide, and is delivered to the filling machine through a pure block tin pipe.

The bottles used are processed for twenty minutes in a 5 per cent solution of caustic soda at 82 C., drained, rinsed with pure water, drained, and immediately automatically filled and capped without contact with human hands.

Analysis (submitted by manufacturer).—

(Analysis of uncarbonated water)

	parts per million
Phosphate (PO_4)	trace
Metaborate (BO_2)	0.0
Arsenate acid (AsO_4)	0.0
Silica (SiO_2)	14.0
Sulphate (SO_4)	22.0
Carbonate (CO_3)	0.0
Bicarbonate (HCO_3)	99.0
Nitrate (NO_3)	trace
Nitrite (NO_2)	0.0
Chloride (Cl)	1.0
Bromide (Br)	0.0
Iodide (I)	0.0
Iron (Fe)	4.0
Manganese (Mn)	trace
Calcium (Ca)	29.0
Magnesium (Mg)	7.0
Potassium (K)	2.0
Sodium (Na)	trace
Ammonium (NH_4)	0.1
Oxygen (Calculated) (O)	0.2
(Sanitary analysis)	
Ammonia nitrogen	0.15
Albuminoid nitrogen	0.10
Nitrite nitrogen	0.002
Nitrate nitrogen	0.000
Oxygen consumed	2.0

Micro-Organisms.—

Colonies per cc. (37 C., 96 hours)	10
Colonies per cc. (25 C., 96 hours)	15
Gas producers (5 cc.)	0
B. coli-communis	absent
Streptococci	absent

Claims of Manufacturer.—A pure highly carbonated spring water of a low mineral content.

DEBUS SLICED BREAD AND DEBUS QUALITY BREAD

Manufacturer.—Debus Baking Corporation, Hastings, Neb.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, patent flour of Northwest wheat, water, salt, sucrose, yeast and a yeast food containing calcium sulphate, ammonium, chloride, sodium

chloride and potassium bromate, are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, salt, sucrose, lard, malt syrup, and sweetened condensed skim milk to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, further fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper.

The factory, equipment and storage rooms are kept in strictly sanitary condition.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	34.7
Ash	0.9
Fat (direct ether extraction method)	1.1
Protein (N × 6.25)	9.1
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	54.0

Calories.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—A bread of good quality.

BANNER BLUE CORN SYRUP WITH CANE FLAVOR

Packer.—D. B. Scully Syrup Company, Chicago.

Description.—A table syrup; corn syrup flavored with refiners' syrup.

Manufacture.—The corn syrup ingredient is manufactured from a purified corn starch. Corn is soaked in warm water containing 0.2 per cent sulphur dioxide until softened to enable the separation of the germ, hull, gluten and starch. The starch is repeatedly washed until almost completely free from the other materials.

The purified starch in 0.2 per cent hydrochloric acid suspension is cooked under pressure at about 140 C. until the starch has been sufficiently hydrolyzed to produce 43 per cent reducing sugars as dextrose on the basis of the solids content of the final product. The mixture is almost completely neutralized with sodium carbonate, which throws out of solution the protein and other nonsugar constituents. The hot sugar liquor is filtered through cloth filter presses, concentrated, and filtered through bone-black, yielding a water clear solution which is concentrated in "vacuum" pans to the desired density.

The manufacturing process is under laboratory control. The finished syrup has a p_H of 5.0 for mixing syrups and 5.5 for confection syrups. The ash consists essentially of sodium chloride.

A representative analysis of the corn syrup follows:

	per cent
Moisture	19.5
Ash	0.3
Protein (N × 6.25)	0.03
Reducing sugars as dextrose	34.6
Dextrins (by difference)	45.6
Sulphur dioxide	0.002
p_H	5.0

The refiners' syrup ingredient conforms to the United States Department of Agriculture Standard for that product.

The corn syrup and a relatively smaller quantity of refiners' syrup are heated to 80 C. and mixed together in a tank, which acts as a reservoir to the filling machines for packing the syrup in air tight tins.

Analysis (submitted by manufacturer).—

	per cent
Moisture	23.0
Ash	0.7
Fat (ether extract)	0.0
Protein (N × 6.25)	0.2
Reducing sugars, as dextrose	31.0–41.0
Reducing sugars, as dextrose after invertase inversion	40.0–50.0
Sucrose (estimated from reducing sugars)	8.0–11.0
Dextrins (by difference)	37.1–24.1
Sulphur dioxide	0.001

No methods are available for accurately determining the composition of syrups of this nature; therefore the foregoing analysis is roughly approximate.

Calories.—3.1 per gram; 88 per ounce.

Claims of Manufacturer.—A syrup for cooking, baking and table use. It is suitable as a carbohydrate supplement for milk modification for infant feeding.

HYGEIA PURE STRAINED MIXED VEGETABLES WITH RICE AND BEEF EXTRACT

Contains Vitamin D

Added Irradiated Ergosterol

Manufacturer.—Snider Packing Corporation, Rochester, N. Y.

Distributor.—Hygeia Nursing Bottle Company, Buffalo, N. Y.

Description.—A mixture of strained potatoes, carrots, celery and rice with beef extract prepared under conditions which largely retain the natural mineral and vitamin content; with added vitamin D (irradiated ergosterol), 60 D units per fluidounce; packed in glass jars. The D units are those defined by the Council on Pharmacy and Chemistry of the American Medical Association (New and Nonofficial Remedies, 1931, p. 414). One fluidounce is equivalent in vitamin D to the D content of one teaspoonful of cod liver oil. No sugar or seasoning is added.

Manufacture.—The potatoes are put through an onion peeler to remove the outer skin, are cleaned, and the eyes are cut out. The celery is cleaned and scrubbed by hand; the root, butt end and leaves are cut off and the stalks separated in order that each stalk may be washed separately and scrubbed. A definite quantity of water plus the ground potatoes, carrots and celery are placed in a tin lined steam jacketed kettle and heated to from 71 to 76 C. After fifteen minutes the beef extract is added. The batch is cooked for a definite period, when the boiled rice is added, after which the entire batch is cooked for five minutes.

The cooked vegetables are then passed through a puréeing device similar to that used for peas. All subsequent steps are similar to those described for the preparation of the Strained Peas (THE JOURNAL, Feb. 13, 1932, p. 555).

Irradiated ergosterol is incorporated in the product, as described for the Strained Peas.

Analysis (submitted by manufacturer).—

Specific gravity 20 C./20 C	1.03
	per cent
Moisture	92.0
Total solids	8.0
Ash	0.5
Fat (ether extract)	0.1
Protein (N × 6.25)	1.0
Starch (acid hydrolysis method)	3.3
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	6.0
Calcium (Ca)	0.02
Iron (Fe)	0.001
Phosphorus (P)	0.01

Calories.—0.3 per gram; 8 per ounce.

Vitamins and Claims of Manufacturer.—See these sections for Strained Peas.

CHECK BREAD

(Sliced and Unsliced)

Manufacturer.—Banner Baking Company, Birmingham, Ala.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, "short patent" flour from Southwest wheat, water, yeast and a yeast food containing ammonium chloride, calcium sulphate, sodium chloride and potassium persulphate, are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, salt, sucrose, lard and powdered skimmed milk to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper.

The factory, equipment and storage rooms for the materials used are kept in strictly sanitary condition.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	37.2
Ash	0.9
Fat (direct ether extraction method)	1.9
Protein (N × 6.25)	10.0
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	49.8

Calories.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—A bread of good quality.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

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SATURDAY, MARCH 5, 1932

DUODENAL ULCERS AFTER LOSS OF PANCREATIC JUICE

While, *a priori*, the total loss of any one of the digestive fluids should not prevent entirely the conversion of the foodstuffs to assimilable forms, the chemical characteristics of certain of these secretions, apart from the content of appropriate hydrolytic enzymes, are such that total loss is usually followed by grave consequences. McCaughan [1] has recently discussed the factors involved in the death resulting from complete drainage of pancreatic juice to the outside in experimental animals. It appears that, save for the terminal increase in urea of the blood, there is little demonstrable alteration in the blood, on chemical examination. The loss of water in the daily secretion of pancreatic juice, which amounts to from 300 to 450 cc., was thought to be an important factor in the fatal outcome. Pancreatic juice given by mouth in these studies had a beneficial effect, whereas intravenous injection of the juice or the dialysate from it proved ineffective. Other studies on the same theme but from a somewhat different point of view have lately been reported by Elman and Hartmann.[2] In this investigation an effort was made to determine the etiology of the peptic ulcers, which almost invariably occurred proximally to the pylorus in the duodenum after the total loss of pancreatic juice for a comparatively short time.

The animals were prepared for the experiment by ligation and subsequent intubation of the pancreatic duct. The external secretion of the entire gland was obtained in this way under sterile conditions and collected for the entire twenty-four hours. To avoid the fatal outcome of this procedure, intraperitoneal injections of 500 cc. of a solution containing sodium chloride, potassium chloride, calcium chloride, sodium lactate and dextrose were given each day. The animals were fed a mixed diet and remained in good condition. After intervals of from thirteen to eighteen days had elapsed, duodenal ulcers were found at necropsy. They were generally round or oval, frequently showed bleeding, and although perforation did not occur there was no evidence of healing. Abnormalities were not found in the stomach, pancreas or elsewhere in the body.

The absence of definite chemical changes in the blood leads to the conclusion that the main factor concerned in the development of the duodenal ulcers is not a general metabolic one. It appears that after gastroenterostomy the development of peptic ulcers is frequent on the distal side of the exit from the stomach, irrespective of the portion of the small intestine to which it is joined, provided the pancreatic juice is not permitted to enter the intestine. Under ordinary circumstances there is evidence that the neutralization of the acid chyme takes place on the proximal side of the pyloric sphincter as a result of the regurgitation of the alkaline pancreatic juice. According to Elman and Hartmann the duodenal ulcers, in their studies, represent a local tissue erosion brought about by the acid material from the stomach. Supporting evidence is at hand that partial pyloric occlusion is followed by high gastric acidity and ulcers in the gastric mucosa.

These conclusions naturally direct attention to the normal mechanism of the opening of the pyloric sphincter. The recent review by Murlin [3] summarizes the conflicting evidence bearing on this question and the consequent difficulty in formulating a sound hypothesis. The foregoing discussion provides important supplementary information on the normal functions of this pyloric structure. It indicates that the opening of the pyloric sphincter is significant not only in permitting the egress of material but also in allowing the neutralizing fluids from the intestine and pancreas to enter the stomach, thus guarding the functional and structural integrity of both stomach and duodenum.

1. McCaughan, J. M.: Am. J. Physiol. **97**: 459 (June) 1931.
2. Elman, Robert; and Hartmann, A. F.: Spontaneous Peptic Ulcers of Duodenum After Continued Loss of Total Pancreatic Juice, Arch. Surg. **23**: 1030 (Dec.) 1931.

THE DISCOVERY OF THE TUBERCLE BACILLUS, 1882

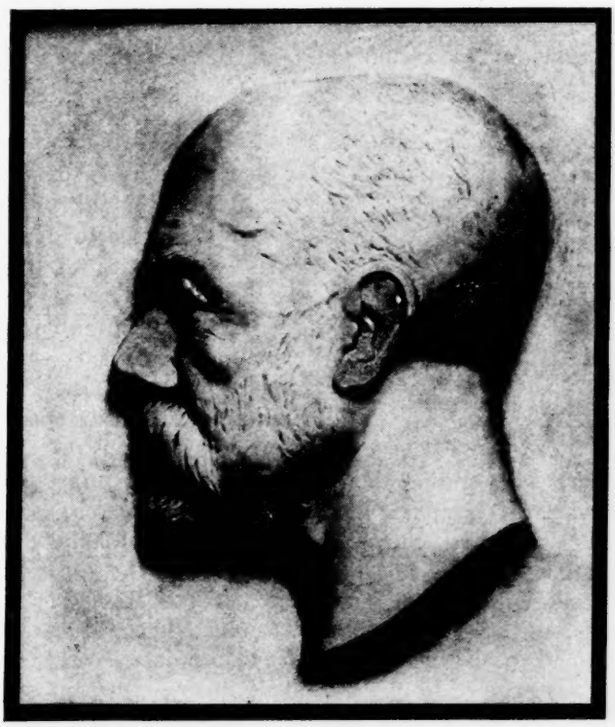
The science of bacteriology is one of the youngest of the biologic disciplines on which the development of modern medicine rests. Bacteria were probably seen by the pioneer Leeuwenhoek before the end of the seventeenth century. Generations passed, however, before the beginnings of the remarkable progress that resulted in the formulation of the germ theory of disease. The doctrine of contagium vivum had, indeed, been proposed in earlier days; but it failed to take firm root and gradually disappeared from men's minds. There was some revival, after 1840, of the theory that contagious disease might be due to microscopic forms of life; but it remained for the great triumvirate—for the work of Pasteur, Koch and Lister—to build the firm foundation on which the present germ theory of disease rests.

March 24, the entire world of biologists and men of medicine will celebrate the fiftieth anniversary of a great event in the history of medicine—the discovery of

3. Murlin, J. R.: J. Nutrition **2**: 311 (Jan.) 1930.

the tubercle bacillus by Robert Koch in 1882. It formed the basis for an entirely new approach to the understanding of a disease that was not only baffling but also extremely devastating. The attack on a secret enemy or the defense against it is usually fraught with great difficulties. When its identity and location are ascertained, intelligent effort can supplant empiric undertakings in the plans for conquest. Important as the identification of the bacillus of tuberculosis is, this contribution is only one of many researches by Koch that attained the goal of success and have greatly promoted the development of medicine.

In his volume on biology and its makers, Locy [1] has pointed out that Koch, with the rigorous scientific spirit for which he is noteworthy, established four necessary links in the chain of evidence to show that a particular organism is connected with a particular disease. These four postulates of Koch are, first, that a microscopic organism of a particular type should be found in great abundance in the blood and the tissue of the sick animal; second, that a pure culture should be made of the suspected organism; third, that this pure culture, when introduced into the body of another animal, should produce the disease; and, fourth, that in the blood and tissues of that animal there should be found quantities of the particular organism that is suspected of producing the disease.



ROBERT KOCH

"Koch's postulates," establishing the pathogenic character of a given microorganism, were first outlined in the classic description of the finding of the tubercle bacillus.[2] Special methods of culture and staining were probably of help in the discovery. In Microbe Hunters, de Kruif,[3] in a chapter on Koch, pays his respects to

> the man who really *proved* that microbes are our most deadly enemies, who brought microbe hunting near to being a science, the man who is now the partly forgotten captain of an obscure heroic age.

Let us hope that before the centennial anniversary, in 1943, of the birth of this distinguished German savant, medicine, aided by his great discovery, will have secured a firm mastery over tuberculosis.

1. Locy, W. A.: Biology and Its Makers, New York, Henry Holt & Co., 1908, pp. 300-301.
2. Koch, Robert: Berl. klin. Wchnschr. **21**: 221, 1882.
3. de Kruif, Paul: Microbe Hunters, New York, Harcourt, Brace & Co., 1926, p. 144.

NEW HAVEN'S PUBLIC HEALTH RECORD FOR 1931

The medical profession is striving for the day when the well trained physician will enjoy fully the wholehearted and intelligent cooperation of the layman. Given such collaboration and the present achievements of the science of medicine, anxiety over the elimination of specific infectious diseases could probably be largely eliminated. In 1931, for the first time, New Haven was without a death from diphtheria and in this year there were only four cases of this disease, a new low record for this city of 162,670 inhabitants. Furthermore, this was the third year, in recent times, during which no death from scarlet fever has occurred. Not only were there forty-seven fewer cases of tuberculosis reported in 1931 than in the immediately preceding year, but the mortality rate was the lowest in history. Two epidemics were experienced, yet even in respect to these the death rates were unusually low; of 4,636 cases of measles only 2 were fatal, and there were 150 cases of poliomyelitis with 9 deaths, a rate much lower than that in the cities in the general vicinity of New Haven.

The record for health established in this community is important because of the methods whereby such distinction was attained. As with most noteworthy achievements, individual records of this sort represent the fruition of progressive improvement, not only national but world-wide. In regard to diphtheria, for instance, real progress in its eradication began with the establishment of the relationship between the diphtheria bacillus and the disease in 1884 by Löffler. There followed the demonstration of first the toxin, then later the antitoxin, and in 1910 Schick's studies, on which modern prophylaxis so largely rests. A general tendency to decrease in diphtheria has been noted. In New Haven the number of deaths per hundred thousand of population was 184 in 1877 and 130 in 1890; by 1910 it had fallen to 12.7. In 1920 there were 466 cases with 17 deaths, and in 1923 an active campaign was begun to root out this disease. The work was carried out for the most part in the schools and up to the middle of 1931 the toxin-antitoxin treatment had been administered to 35,496 children. Of these, 11,936 had received treatment

previously as babies or preschool children. In addition, the Schick test showed that 13,739 individuals were already protected aganist diphtheria. Whereas for the ten years prior to the beginning of this work in 1923 the average number of cases was 313 a year with 20 deaths, the number of cases of diphtheria in 1930 was 14, with 1 adult death. The past year, with only 4 cases and no deaths, completes a remarkable record of preventive medicine on a large scale. The 49,235 children who have been treated not only were protected against the disease but have taken part in a public health demonstration of national importance.

Vital statistics similar to these are available for many cities in this and other countries. They are the occasion for a feeling of civic pride on the part of those who read them; they represent, to a relatively small group of workers, dear results obtained after many discouragements, especially during unfavorable times; they indicate to many citizens a new appreciation of the power of knowledge and the value of preventive medicine; finally, such data mean more effective cooperation with the physician on the part of the layman. Not the least value in an accomplishment of this kind is the incentive and example for similar attacks on other diseases.

Current Comment

WHAT IS BONE?

Every beginner in physiology knows that bone consists of water and about equal parts of organic and inorganic material. If he has had some chemical training he has learned to identify the organic basis of bone with the albuminoid collagen, the precursor of gelatin. He is surely aware, too, that bone is rich in the elements calcium and phosphorus. This mineralization of the osseous tissue serves at once to explain the rigidity of the structures that form the skeleton and thus determine to some extent the form of the body. The more detailed studies of recent years have demonstrated, however, that the inorganic make-up of bone is not adequately expressed by the assumption that it consists of calcium phosphate. The application of the newer methods of roentgen analysis, such as the chemist now applies to the study of crystals, indicates that bone has a crystalline structure which may be compared with that of the apatite minerals. According to Roseberry, Hastings and Morse [1] of the University of Chicago, the chemical composition of untreated bone is similar to that of the mineral dahlite. This has been verified by Bogert and Hastings [2] in the same laboratories. The chief inorganic constituent of bone is probably a crystalline salt, $CaCO_3.nCa_3(PO_4)_2$, n approximating the value 2 in untreated bone. This new information may serve to throw light on the factors governing the precipitation of calcium salts from body fluids not only in normal bone formation but in such pathologic deposits as calcified tissues, hardening of the arteries and gallstones. The bones are looked on today not only as structural parts of the body but also as storehouses of calcium. This element can easily be laid down in the skeleton and easily removed. The mineral ingredients are in a state of flux. Obviously the mobilization of this element from the skeletal units must be determined or modified to some extent by the nature of the inorganic sources in the bones. The newer knowledge also indicates that many tissues, but especially bone, contain an enzyme, phosphatase, that can liberate phosphate from hexose phosphate widely present in the body. It probably plays some part in bringing about a local increase in phosphate ions and thereby facilitating the deposition of calcium phosphate in growing bone. The story of the chemistry of bone is thus growing into a larger chapter of biochemistry.

1. Roseberry, H. H.; Hastings, A. B., and Morse, J. K.: X-Ray Analysis of Bone and Teeth, J. Biol. Chem. **90**: 395 (Feb.) 1931.
2. Bogert, L. J., and Hastings, A. B.: The Calcium Salts of Bone, J. Biol. Chem. **94**: 473 (Dec.) 1931.

THE BACTERIA OF FOOD POISONING

Reports of cases of food poisoning are interesting, especially if the allegedly causative organism has been isolated from the food, from the excreta of persons ill or, perhaps, more rarely, from both. Geiger [1] and his associates have recently reported three outbreaks, two of which occurred in hospitals. The organisms isolated were B. enteritidis, B. paratyphosus B (Aertrycke type) and B. paratyphosus A. The contaminated foods were incompletely cooked veal, rice pudding and an egg soufflé, respectively. It is particularly important to note the absence of infections, as would be indicated by prolonged fevers, in the outbreak apparently due to B. paratyphosus A, in which the food was contaminated by a carrier, the assistant chef of the hospital. That outbreaks of food poisoning may be caused by the paratyphoid-enteritidis group of organisms only has been long questioned by workers in this field. Seemingly, many organisms may be isolated that do not lend themselves to serologic classification with the well known members of the accepted groups. In fact, the isolation of organisms so general in nature as B. proteus and many others closely allied in type from food involved in outbreaks may lead public health officials astray in interpreting the causative factors. Furthermore, the involving of the cocci group, notably the staphylococcus, by Jordan [2] and his co-workers, may further confuse the situation. The evidence seems clear, however, that this organism, so universal and so closely associated with the human skin and therefore with the preparation of food, may be isolated and, in suitable medium, produce a poison that is a gastrointestinal irritant in man. The significance of the staphylococcus and of other organisms that may be isolated from foods suspected of causing outbreaks may be accepted as sufficient. Presumably the clinical

1. Geiger, J. C.; Nelson, Margaret; and Gray, J. P.: Three Outbreaks of Food Poisoning Apparently Due to B. Enteritidis, B. Paratyphosus B (Aertrycke Type) and B. Paratyphosus A, Respectively, Pub. Health Rep. **46**: 1565 (July 3) 1931.
2. Jordan, E. O.: Staphylococcus Food Poisoning, J. A. M. A. **97**: 1704 (Dec. 5) 1931.

symptoms described as well as the incubation period of the intoxication from bacterially contaminated food are similar in all outbreaks, despite the specific organism responsible.

Association News

ABSTRACT OF MINUTES OF BOARD OF TRUSTEES HELD AT ASSOCIATION HEADQUARTERS, FEB. 18 AND 19, 1932

A meeting of the Board of Trustees was held at the Association headquarters, Feb. 18 and 19, 1932.

APPOINTMENTS OF REPRESENTATIVES

Dr. Dean Lewis, Baltimore, was appointed to serve as the Association's representative on the Committee on Autopsies, under the auspices of the American Hospital Association.

Dr. E. P. Sloan, Bloomington, Ill., was appointed to represent the Association at the second International Conference on Goiter, which will be held in Bern, Switzerland, in August, 1933.

THIRD INTERNATIONAL CONFERENCE ON GOITER TO BE INVITED TO THE UNITED STATES

It was decided to add the Association's invitation to the invitations of other national bodies in the hope that the third International Congress on Goiter may be held in the United States in 1937.

ELECTIONS

Nominations to fill vacancies on the editorial boards of the special journals, on councils and on committees were considered and the following appointments were made:

Drs. Isidore Friesner, Ludvig Hektoen, Frederick Tilney, Wallace I. Terry, George M. MacKee and Fritz Talbot were elected to succeed themselves on the editorial boards of the *Archives of Otolaryngology, Archives of Pathology, Archives of Neurology and Psychiatry, Archives of Surgery, Archives of Dermatology and Syphilology* and the *American Journal of Diseases of Children,* respectively.

Dr. J. D. Heard, Pittsburgh, was elected to succeed Dr. Joseph L. Miller on the editorial board of the *Archives of Internal Medicine.*

Dr. Sanford R. Gifford was named to succeed himself, and Dr. Walter R. Parker to succeed Dr. George S. Derby (deceased) on the editorial board of the *Archives of Ophthalmology.*

Dr. C. C. Bass was appointed to succeed himself on the Committee on Scientific Research.

Dr. Reid Hunt and Dr. W. W. Palmer were elected to succeed themselves, and Dr. Alfred F. Hess, New York, to succeed Dr. A. J. Carlson on the Council on Pharmacy and Chemistry.

Dr. Charles A. Doan, Columbus, Ohio, was appointed to succeed Dr. William F. Petersen on the Division of Medical Sciences, National Research Council.

RESIGNATION OF DR. FRANCIS CARTER WOOD FROM COUNCIL ON PHYSICAL THERAPY

The Board accepted with regret the resignation of Dr. Francis Carter Wood from the Council on Physical Therapy, the tendering of which was made necessary because of the burden that has been placed on his time by his duties as editor of the *American Journal of Cancer.*

BUREAU OF HEALTH AND PUBLIC INSTRUCTION

Dr. John M. Dodson, who has acted in the capacity of director of the Bureau of Health and Public Instruction over a period of years, was retired on account of ill health.

Dr. W. W. Bauer, who has recently been employed to act as assistant director of that bureau, was made director.

SURVEY OF HOSPITALS FOR THE CARE OF NERVOUS AND MENTAL PATIENTS

The Board approved the employment of a trained psychiatrist to analyze the information procured through the questionnaire sent out by the Committee on Mental Hygiene and through other sources, with a view to the preparation of a report and the adoption of certain standards.

TESTIMONY OF DR. BEVAN BEFORE SENATE COMMITTEE

The Board of Trustees approved the editorial in THE JOURNAL concerning the testimony of Dr. Arthur Dean Bevan before a Senate committee, and instructed the editor so to inform Dr. Bevan.

MISCELLANEOUS

Appropriations were made to carry on the work of the various councils and bureaus, as well as for the Committee on the Protection of Medical Research and for the committees on scientific and therapeutic research. Other more or less routine matters were given careful consideration.

THE NEW ORLEANS SESSION

Indications Point to Well Attended Meeting

Reports received from Dr. W. H. Seemann, general chairman of the Committee on Arrangements for the New Orleans Session of the American Medical Association, May 9 to 13, indicate a large attendance. Advance hotel reservations are being received in large numbers by the New Orleans Hotels Committee, of which Dr. Emmett L. Irwin is chairman.

Dr. Irwin reports that the Hotel Roosevelt is booked to capacity with advance reservations and has been obliged to turn a number of requests for rooms over to his committee for placement with other New Orleans hotels. A large number of reservations have already been placed with the St. Charles and Monteleone, and scattering reservations have been handled through all the larger hotels of New Orleans.

The New Orleans committee assures adequate housing facilities through its large number of fine hotels. The convention city's hotel committee urges, however, that for choice of accommodations members should mail requests for reservations without delay. A list of hotels with rates appeared on advertising page 41 of THE JOURNAL, February 6. Hotel reservations should be mailed to Dr. Emmett L. Irwin, Chairman, Hotels Committee, Post Office Box 1460, New Orleans, La.

Women's Auxiliary Planning Entertainments

Mrs. Walter J. Freeman, president of the Women's Auxiliary of the American Medical Association, visited New Orleans, February 25 and 26, and met with the local committee, of which Mrs. Joseph Hume is chairman. The Hotel Bienville has been designated as headquarters for the Women's Auxiliary, and plans are materializing for what promises to be one of the most enjoyable entertainment programs ever arranged for the Women's Auxiliary. Mrs. Hume points out that New Orleans holds so much of interest, particularly to womankind, that the only difficulty existing in planning the entertainment program is to find time to include opportunities for observing the many historical and romantic points of interest, beautiful gardens of semitropical and native flowers, interesting old patios, and the other innumerable attractions of the South's metropolis.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday from 12 noon to 12:05 p. m. over Station WBBM (770 kilocycles, or 389.4 meters) and other stations of the Columbia Broadcasting System, and on Wednesday and Friday from 2:25 to 2:30 p. m. over Station WBBM, Chicago.

The program for the week is as follows:

March 7. Principal Causes of Illness in Typical American Community.
March 9. Common Sense and the Open Window.
March 11. Why We Run Away.

There is also a fifteen minute health talk sponsored by the Association on Saturday from 11:15 to 11:30 a. m. over Station WBBM, Chicago.

The program for the week is as follows:

March 12. The Sign on Your House.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Diploma and Certificate Missing. — Dr. Paul P. E. Michael, a graduate of McGill University, May 30, 1928, licensed as a physician and surgeon in California, Aug. 30, 1928, reported, February 2, that his California certificate (number A-04771) was recently lost along with other things when a bag of his disappeared. A diploma from Northwestern University Medical School, 1904, belonging to Dr. Claire Willard Fulton, Los Angeles, was stolen from his office, February 7.

University News. — Dr. John C. Meakins, professor of medicine and director, department of medicine, McGill University Faculty of Medicine, will be at the University of California Medical School as university lecturer from March 11 to April 2. The university lectureship was established at the medical school in 1930. Dr. Lewellys F. Barker, Baltimore, was the first lecturer, and Dr. Herman M. Adler, the second. The physician serving as lecturer conducts clinics and demonstrations at the medical school during his month's incumbency.

COLORADO

Licenses Renewed.—At a recent meeting of the state board of medical examiners, the license of Dr. Silvius S. Craig, Wilmar, Calif., was renewed. Dr. Craig's license had been revoked, July 1, 1930, for unprofessional and dishonorable conduct in advertising. The license of Dr. Toros Sarkisian, Denver, was renewed at a meeting of the board, January 5. Dr. Sarkisian's license had been revoked in 1923 for performing an abortion.

White House Conference. — A continuation committee, appointed at the last session of the Colorado White House Conference on Child Health and Protection, Denver, January 14-16, is now endeavoring to discover ways by which the findings may be used to guide future activities in the different counties of the state. F. J. Kelly, Ph.D., Washington, D. C., representing the national conference, and Dr. Estella F. Warner, U. S. Public Health Service, were the guest speakers. Dr. Franklin P. Gengenbach, Denver, was director of the conference. The chairmen of the four divisional sessions were: medical service, Dr. Maurice H. Rees, Denver, president, Colorado State Medical Society; public health service and administration, Dr. Samuel R. McKelvey, Denver, secretary, state board of health; education and training, Mrs. Inez Johnson Lewis, state superintendent of public instruction; the handicapped, Miss Eunice Robinson, president, state conference of social work.

DISTRICT OF COLUMBIA

Cancer Clinic.—Dr. Joseph C. Bloodgood and his associates at Johns Hopkins University School of Medicine and Johns Hopkins Hospital, Baltimore, conducted a bone and cancer clinic in the department of pathology, Howard University School of Medicine, February 19-20.

Personal.—At the bicentennial convocation of George Washington University, February 22, the honorary degree of doctor of laws was conferred on Dr. Luther Halsey Reichelderfer, and the degree of doctor of science on Dr. Sterling Ruffin. Both physicians, who are residents of Washington, are alumni of George Washington University School of Medicine.

Dr. Allemann Retires.—Dr. Albert Allemann retired at the end of February from active duty in the library of the surgeon general's office, where he has been since 1900. Dr. Allemann was born in Soleure, Switzerland, in 1860, and came to the United States in 1884. He entered the library in 1900 and began the study of medicine, graduating from George Washington University School of Medicine in 1904. Dr. Allemann was for fifteen years principal assistant librarian and editor of the *Index Catalogue*. At one time he was assistant editor of the *Index Medicus* and later was on the staff of the *Quarterly Cumulative Index Medicus*. Dr. Allemann will be remembered for his editing on the *Index Catalogue*, including four volumes of the second and all of the third series. Testimonials of the esteem and affection of his fellow workers at the library were presented to Dr. Allemann at the time of his retirement.

Annual Banquet of Society.—Dr. E. Starr Judd, Rochester, Minn., President of the American Medical Association, was the guest speaker at the annual reunion of the George Washington University Medical Society, February 20. His subject was "Research and Practical Studies of Diseases of the Biliary Tract." Among the other guests of honor were Cloyd Heck Marvin, LL.D., president of George Washington University; Dr. Earl Baldwin McKinley, dean of George Washington University School of Medicine; Dr. Alan M. Chesney, dean, Johns Hopkins University School of Medicine; Dr. William Gerry Morgan, dean, Georgetown University Medical School; Surg. Gen. Robert W. Patterson, U. S. Army; Surg. Gen. Charles E. Riggs, U. S. Navy; Surg. Gen. Hugh S. Cumming, U. S. Public Health Service; Dr. Luther H. Reichelderfer, chairman, board of commissioners of the District of Columbia, and Dr. Joel T. Boone, physician to President Hoover. Dr. Frederick A. Reuter, president of the society, presided.

Society News. — The International Medical Club gave a dinner, February 4, in honor of Dr. Georges Portmann, professor of laryngology, University of Bordeaux. At a business meeting later, Dr. Adolphus B. Bennett was elected president, and Dr. Panigiotes S. Constantinople, secretary.——The Washington Society of Pathologists furnished the program for the meeting of the Medical Society of the District of Columbia, January 27. Major George R. Callender, Baltimore, spoke on "Prognosis of Melanoma of the Eye"; Dr. Wallace M. Yater, Major Paul E. McNabb and Dr. Edmund Horgan, "Clinicopathologic Types of Hemochromatosis," and Dr. Walter Freeman, "Cerebral Metastases in Primary Carcinoma of the Lung." ——Dr. Francis R. Hagner addressed the Society of Hospital Interns, January 13, on "The Use and Abuse of the Catheter." ——The Hippocrates-Galen Medical Society furnished the program for the February 17 meeting of the Medical Society of the District of Columbia; among others, Dr. George B. Trible spoke on "Present Status of Sims Surgery."

ILLINOIS

Society News. — Dr. Francis Eugene Senear, Chicago, addressed the Will-Grundy County Medical Society, March 2, on the present status of antisyphilitic treatment.——The Aurora Medical Society was addressed, March 3, by Dr. Lowell D. Snorf, Chicago, on "Complications of Peptic Ulcer."

Chicago

Dr. Campbell to Give Gehrmann Lectures.—Dr. Charles Macfie Campbell, professor of psychiatry, Harvard University Medical School, will deliver the Gehrmann Lectures at the University of Illinois College of Medicine, March 15-17, in room 221 of the new building at 1853 Polk Street. The lectures will be devoted to mental hygiene. Dr. Campbell will speak at 4 o'clock, March 15, on "Schizophrenic Disorders"; March 16, 1 o'clock, "Preoccupation and Environmental Problems of the Patient," and, March 17, 4 o'clock, "Personal and Environmental Problems and Resources Available for Treatment."

Personal.—Mr. Paul H. Fesler has been appointed superintendent of Wesley Memorial Hospital, effective May 1, to succeed the late Mr. E. S. Gilmore. Mr. Fesler has been superintendent of the University of Minnesota Hospitals, Minneapolis, since Jan. 17, 1927. For twelve years previous to that time, he had served in a similar capacity at the University of Oklahoma. Mr. Fesler, for a number of years, was secretary of the Oklahoma Hospital Association, and at one time its president. He also served as president of the Minnesota Hospital Association. He is now president of the American Hospital Association. —— Dr. James W. Hall was appointed criminologist on the coroner's staff, December 17.

New Regulations at Medical School. — Graduation in medicine eight years after entering college, instead of the present nine years, will be possible at the School of Medicine of the Division of Biological Sciences, University of Chicago, with the beginning of the spring quarter, according to regulations approved at a meeting of the faculty of the division, February 18. The intern year will be included in the eight years. Abolishment of the bachelor of science degree as an admission requirement was also approved. For admission to the medical school, adequate training in physics, chemistry, biology and mathematics is recommended, in addition to a reading knowledge of German or French. After 1933, a reading knowledge of German will be required. It is expected that this preparation will ordinarily be completed in the first year in the division. Selection by the committee on admissions will be based on character, aptitude and scholarship. Evidence of interest and ability in research will commend applicants to this com-

mittee. Requirements for the granting of the degree of doctor of medicine, as approved at this meeting, provide that group examinations be abandoned and general departmental examinations be substituted for them. The student will be required to pass a general departmental examination in each department during the quarter in which he completes his work in that department. The requirement of a thesis for graduation is abolished. The degree of doctor of medicine with honors in one department will be given when, in addition to meeting with distinction the requirements for the degree of doctor of medicine, the student has also completed a satisfactory thesis constituting a contribution to knowledge. This degree will be awarded on recommendation of the department and approval of the faculty of the division. The official name of the medical school will be the School of Medicine of the Division of the Biological Sciences.

Society News.—The Chicago Society of Industrial Medicine and Surgery held a joint meeting with the Chicago Urological Society, March 2; Drs. Kellogg Speed and Edward William White spoke on "Pelvic Fractures" and "A Study of Certain Urological Complications Associated with Pelvic Fractures," respectively.——Dr. Arthur Weil addressed the Chicago Society of Internal Medicine, February 22, on "Presence of Myelolytic Substances in the Urine of Multiple Sclerosis Patients" and Dr. Oswald H. Robertson and Helen M. Wallace, "Distribution of Pneumococci in Lungs During Lobar Pneumonia."——The Chicago Pediatric Society was addressed, February 15, among others, by Drs. Benjamin Gasul and Philip Rosenblum on "An Attempt to Use the Spinal Fluid as a Biologic Test for the Diagnosis of Tuberculous Meningitis."——Dr. John A. Larson, among others, spoke before the Chicago Neurological Society, February 18, on "Postural Precedence in Postencephalitis."——The Society of Medical History of Chicago was addressed, March 1, by Dr. Arno B. Luckhardt on "History of Hemostasis," and Dr. P. Arthur Delaney, "Michael Servetus and the Discovery of the Pulmonary Circulation." There was also an exhibition of old medical books in Billings Library, University of Chicago.——Dr. Stanton K. Livingston, Hines, Ill., among others, addressed the Chicago Orthopedic Club, February 12, on "Maggot Treatment of Chronic Osteomyelitis."——Dr. Tadeus Dundulis addressed the Lithuanian Medical Association of America, February 23, on "Elbow Fractures Treated in Extended Position."——A symposium on mucin therapy will comprise the program of the Chicago Medical Society, February 16; members of the faculty of Northwestern University Medical School will conduct the program.——Dr. Austin A. Hayden, among others, will address the Chicago Laryngological and Otological Society, March 7, on "Medical Advertising."——The Chicago Surgical Society was addressed, March 4, among others, by Drs. Loyal Davis and Hale A. Haven on "Surgical Treatment of Trigeminal Neuralgia," and Charles B. Huggins, "Further Experiments on Bone Formation."——Dr. Edward H. Cary, Dallas, Texas, President-Elect, American Medical Association, addressed the students and faculty of the University of Illinois College of Medicine, February 26, on "Medical Education, Past and Present."

INDIANA

New Biologic Collection.—The discovery and collection of nearly 700 biologic species of insect life new to science were announced on the return to Indiana University, Bloomington, of Alfred C. Kinsey of the zoology department from a 10,000 mile scientific trip through Mexico. The Kinsey expedition collected more than 100,000 individual specimens.

University News.—The department of medicine of Indiana University School of Medicine, Indianapolis, has been divided into two sections to be known as the department of cardiology and the department of internal medicine, according to the press, January 30. This reorganization was necessary to take care of steadily increasing work, it was said. Dr. George S. Bond will head the department of cardiology, and Dr. James O. Ritchey the department of internal medicine. Both of these physicians were on the staff of the former department of medicine.

Society News.—The Marshall County Medical Society was addressed at Plymouth, February 3, on "Treatment of Sinusitis."——Dr. Foster J. Hudson, Indianapolis, addressed the Hancock County Medical Society, February 12, on "Toxemias of Pregnancy: Threatened, Incomplete and Inevitable Abortion."——At the meeting of the Madison County Medical Society in Anderson, February 15, Dr. Heyworth N. Sanford, Chicago, spoke on "Convulsions in Infancy" with especial reference to treatment.——Dr. Edgar F. Kiser, Indianapolis, addressed the Delaware-Blackford County Medical Society, February 16, on "The History of Medicine."——Dr. Louis H. Clerf, Philadelphia, addressed the Tippecanoe County Medical Society, February 11, on "Bronchoscopic Aid in Diagnosis and Treatment."——The Floyd County Medical Society was addressed, February 12, by Dr. Elihu P. Easley, New Albany, on "Relation of Doctors to Each Other and to the Public."——Dr. Charles O. McCormick addressed the Indianapolis Medical Society, February 23, on "Fewer and Better Babies (From the Viewpoint of Eugenic Sterilization)," and Dr. Delbert O. Kearby, "Bronchoscopy as an Aid to Diagnosis."

KENTUCKY

Bills Introduced.—S. 350, to amend the nursing practice act, proposes to require all nursing of the sick to be done by a registered or trained nurse, except (1) gratuitous nursing "by a friend or member of the family"; (2) "strictly charitable nursing by established hospitals"; (3) services of "nurses who do not assume to be trained or registered nurses, who shall have had ten years practical nursing of the sick at the time of the passage of this act." Further, the bill proposes to make it "unlawful for any doctor or hospital . . . to employ or use any nurse unless that nurse be a registered or trained nurse." S. 353 proposes to create a board of barber and beautician examiners and to regulate the practice of barbering and beauty culture. S. 360 proposes to make it unlawful for any person to possess, sell, manufacture or distribute in any other than its natural state, any marihuana, Indian hemp or hasheesh, "except under the direction and in the course of treatment by a licensed physician." S. 374 and H. 724 propose to levy on licensed physicians a tax of one third of their fees for issuing prescriptions for intoxicating liquors or for narcotic drugs. S. 395 and H. 635, to amend the workmen's compensation act, propose to make an employer liable without any limit, other than the discretion of the compensation board, for such medical, nursing and hospital services as are necessary during the first ninety days after an injury to an employee. H. 521, to amend the laws defining the duties of coroners, proposes (1) to give coroners jurisdiction in cases of deaths occurring without medical attention; (2) to make it the duty of any person discovering or having in his possession the body of a person violently killed or dying without the attendance of a licensed physician to notify the coroner of the facts, and (3) apparently, to permit coroners to hold inquests without juries. H. 617, to amend the workmen's compensation act, proposes (1) to make the employer liable without any limit as to amount or time for such medical and hospital services as are necessary to treat an injured employee, and (2) to permit an injured employee to select his own physician.

MARYLAND

Child Health Activities.—About 25 per cent more children were examined last year at child health conferences in the counties throughout Maryland than in 1930. Dr. James H. Mason Knox, Jr., chief, bureau of child hygiene, state department of health, announced that a total of 8,423 children under school age, representing more than 5,000 families, were examined in 1931, as compared with 6,169 in the preceding year. Of the 8,423 children, 3,797 were under 5 years old, and the remainder from 5 to 7 years old. Including the stops made by the "healthmobile" in a tour of the Eastern Shore and southern Maryland last year, 388 different places were visited by health officers and 545 health conferences were held.

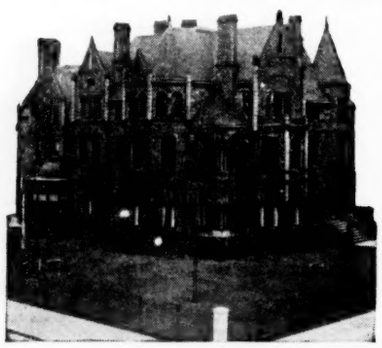
MICHIGAN

Society Opposes "Sheppard-Townerism."—The council of the Wayne County Medical Society recently adopted a resolution opposing further "Sheppard-Townerism." This action followed the recent introduction in Congress of two bills (H. R. 7525, S. 572) intended to revive "Sheppard-Townerism." These bills propose to appropriate money from federal taxes, raised largely from city populations, and apply it for rural hygiene generally and maternal and infant hygiene more particularly, in the rural districts of the various states.

Society News.—A symposium on tuberculosis in pregnancy comprised the program of a joint meeting of the Wayne County Medical Society and the Detroit Obstetrical and Gynecological Society, February 23; the speakers were Drs. Richard H. Morgan, William A. Hudson, Plinn F. Morse and Harold Henderson. The county society held "open house," February 22, in honor of Washington's anniversary.——Dr. John J. Corbett, Detroit, addressed the Macomb County Medical Society, January 4, on "Treatment of Hemorrhoids."——Drs. Wadsworth Warren, Jr., and Arthur E. Hammond, Detroit, addressed the Oakland County Medical Society, February 18, at Pontiac, on bronchoscopy. A film on "Vaginal Hysterectomy" was also shown.

Foundation Aids Study of Morphine.—The Rockefeller Foundation has provided for an extension of an investigation of the chemistry and pharmacology of morphine, with the object of removing the dangerous properties of the drug. This study has been carried on at the Universities of Michigan and Virginia, under the auspices of the National Research Council through its drug addiction committee. The Ann Arbor *Tribune* states that the results already obtained have been so promising that the foundation has granted a sum that will not only provide for the extension of the work to Jan. 1, 1936, but also allow some increase in the yearly budget. Drs. Charles W. Edmunds and Nathan B. Eddy are in immediate charge of the work at the University of Michigan.

Wayne County Society's New Home Dedicated.—The new headquarters of the Wayne County Medical Society, Detroit, was dedicated with a housewarming, January 29. More than 1,200 of the approximately 1,600 members of the society were present. The new home of the society contains fifty rooms. In 1893, a year of depression, the society's bulletin states, the expenditures for the building were said to be $400,000 for the house, $250,000 for decorations and glazing, and $300,000 for art treasures. The house, which was built by Mr. David Whitney, took four years to erect. The mansion is famous for its carved woodwork and parquet floors, its stained glass windows and its twenty fireplaces, each of different marble or tinted brick. The first floor of the building has been given over to the committee rooms, lounges and dining rooms of the society. The second floor contains the executive offices together with the offices of the Detroit Physicians Business Bureau, the collection department of the society. The smokers' room and the billiard and ping-pong room will occupy paneled space in the basement. A new feature of the society's headquarters is the Seniors' Room, set aside for physicians who have been in practice more than twenty-five years. The Noon Day Study Club, composed of physicians under 40 years of age, also occupies space in the building. Elaborate entertainment was provided at the housewarming and forty-three valuable door prizes were awarded. The Wayne County Medical Society had occupied its home in the Maccabees Building for five years.



MINNESOTA

Liquor Prescribing in Minnesota.—The Winona, Minn., *Republican Herald* cites an interview with S. B. Qvale, district superintendent of the Bureau of Industrial Alcohol in Minneapolis, in which he says that the total number of permits in Minnesota is 1,600. Of those who have permits, few physicians use the limit. Some physicians keep their books for two or three years without completely using them, and less than 7 per cent of physicians in the state use the full number of prescriptions allowed.

NEBRASKA

Health at Omaha.—Telegraphic reports to the U. S. Department of Commerce from eighty-three cities with a total population of 36 million, for the week ended February 20, indicate that the highest mortality rate (21) appeared for Omaha and the rate for the group of cities as a whole, 12.5. The mortality rate for Omaha for the corresponding week last year was 13.7. The annual rate for the eighty-three cities for the seven weeks of 1932 was 12, as against a rate of 14.4 for the corresponding period of 1931. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have large Negro populations may tend to increase the death rate.

Society News.—The Nebraska section of the American College of Surgeons held its annual assembly in Omaha, February 23-24. Among speakers listed on the program were Drs. Frank C. Mann, Rochester, Minn., who spoke on "Physiology of the Biliary Tract"; William E. Lower, Cleveland, "The Prostatic Problem"; Vilray P. Blair, St. Louis, "Surgery of the Ocular Appendages and Related Structures," and Louis J. Hirschman, Detroit, "Umbilical Colostomy in Carcinoma of the Rectum."——Drs. William L. Shearer and Rodney W. Bliss, Omaha, addressed the Otoe County Medical Society, Nebraska City, January 11, on "Upper Respiratory Infection."——Drs. Frederick W. Niehaus and John P. Lord, Omaha, addressed the Omaha-Douglas County Medical Society, February 9, on "Cardiac Enlargements with Special Reference to Orthograms" and "Deformities and Disabilities of the Lower Extremities," respectively.

NEW JERSEY

Society News.—Dr. Thomas McCrae, Philadelphia, addressed the Mercer County Medical Society, in January, on "Troubles of the Colon."——Dr. Frederick T. Van Beuren, Jr., New York, presented a paper before the Morris County Medical Society at the New Jersey State Hospital, Greystone Park, January 21, on "Symptoms of Acute Intestinal Obstruction with Relation to Other Acute Surgical Conditions of the Abdomen."——Drs. Matthew Walzer and Albert F. R. Andresen, Brooklyn, addressed the Passaic County Medical Society, Paterson, January 14, on "Allergy of the Respiratory Tract" and "Allergy of the Gastro-Intestinal Tract," respectively.——Dr. John A. Kolmer, Philadelphia, addressed the Gloucester County Medical Society, Pitman, January 22, on "Specific Treatment of Pneumonia."

Bills Introduced.—S. 189 proposes (1) to require every motor vehicle to be covered by adequate indemnity insurance and (2) to permit all persons injured by motor vehicles without regard to the negligence of either party, to recover specific amounts from the insurers of the motor vehicles causing the injuries. The indemnity recoverable is to include "indemnity for medical, surgical, hospital and nursing services, and the cost of medicines and appliances, actually incurred as a result of the accident." A. 215, to amend the workmen's compensation act, proposes to eliminate the statutory definition of hernia as ordinarily a disease and only rarely an accident, and as presumptively of either congenital or slow development in the absence of a tear or puncture of the abdominal wall. Proof of the industrial origin of a hernia may be by preponderance of evidence and need not as at present be conclusive proof. Time for the manifestation of symptoms after the event alleged to have caused the injury, within which industrial origin is to be presumed, is extended. Detailed provisions of the present law defining the relative responsibilities of employer and employee for the treatment of an industrial hernia will be eliminated if this bill is passed.

NEW YORK

Society News.—Dr. William H. Park, New York, addressed the Medical Society of the County of Rensselaer, January 12, on prevention of diphtheria, scarlet fever and poliomyelitis. Dr. Eugene F. Connally, Troy, retiring president, presented a paper on Welch bacillus infection.——Dr. Joseph C. Doane, Philadelphia, addressed the Broome County Medical Society, Binghamton, January 5, on "Relations Between the Medical and Nursing Professions and the Hospitals."——Dr. Harry R. Lohnes, Buffalo, presented a paper on "Anemia in Infancy and Childhood" before the Genesee County Medical Society, Batavia, January 13.

Prizes for Essays.—The Medical Society of the State of New York announces two prizes to be awarded this year. The Merritt H. Cash Prize will be given to a member of the state society who submits the best original essay on a subject to be designated by the committee on prize essays. This prize, established in 1863, has been awarded only four times. The second prize is the Lucien Howe Prize, a medal to be given for the presentation of the best original contribution to the knowledge of surgery, preferably ophthalmology. Competitors need not be members of the New York society. Essays must be submitted before May 9, to the Committee on Prize Essays, Medical Society of the State of New York, 2 East One Hundred and Third Street, New York. Members of the committee are Drs. Edwin MacD. Stanton, Schenectady, Albert C. Snell, Rochester, and Edgar A. VanderVeer, Albany.

Bills Introduced.—S. 959 and A. 1168 propose that the state commissioner of health assume and continue the functions of the bureau of venereal diseases in the state department of health. S. 1083 and A. 975, to amend the medical practice act with respect to the practice of osteopathy, propose (1) to denominate osteopaths as osteopathic physicians; (2) to provide that "a license to practice osteopathy shall not entitle the holder thereof to perform any surgical operation involving incision for the opening of a natural body cavity, for the removal of cancer or other tumor, for the amputation of an extremity or an appendage, or for the removal of any gland or organ, or part

thereof, of the human body; nor shall such license permit the holder thereof to administer drugs, except narcotics, anesthetics, antiseptics, serums, vaccines and antitoxins," and (3) to omit that portion of the present law which prohibits osteopathic licentiates from administering drugs or performing surgery with the use of instruments. A. 996 and S. 1270 propose to prohibit hospitals, supported wholly or partly by public revenue, from collecting any fee for medical services rendered while operating public clinics. A. 1165 proposes to authorize the state commissioner of health to establish in every county one or more cancer clinics. A. 1191 and S. 1273 propose to prohibit experiments on living dogs. A. 1217 proposes to create a board of hairdressers and cosmetologists and to regulate the practice of hairdressing and cosmetology. A. 1477 proposes to accord liens to charitable or governmental hospitals, treating persons injured in accidents, on any judgments or settlements obtained by the injured persons, by reason of such injuries.

New York City

Course for Psychiatric Social Workers.—The New York State Department of Mental Hygiene is conducting an institute for the social workers of the state institutions under its direction, at the New York State Psychiatric Institute and Hospital, February 15 to March 25. Among other lecturers taking part in the course, Dr. Howard W. Potter will conduct a course in child guidance, and Dr. Leland E. Hinsie a course in psychiatry.

Academy Afternoon Lectures.—Coming lectures in the afternoon series at the Academy of Medicine are as follows:

March 11, "Consecutive Clinical and Pathological Events in Cancer," Dr. Harrison S. Martland, Newark, N. J.
March 18, "Practical Points in Surgical Diagnosis," Dr. Frederic W. Bancroft.
April 1, "Chronic Colitis," Dr. Walter A. Bastedo.
April 8, "Ultraviolet Therapy," Dr. Edgar Mayer, Saranac Lake.
April 15, "The Influenzal Cold," Dr. William R. Williams.
April 22, "A Discussion of the Prostatic Problem," Dr. William E. Lower, Cleveland.

Dr. Nathan Rosenthal gave the lecture, March 4, on "Diseases of the Blood," with special reference to treatment.

Child Guidance Bureau to Open Clinic.—The new Bureau of Child Guidance of the Board of Education recently announced that a clinic for the treatment of cases of maladjustment is to be opened at the school at 228 East Fifty-Seventh Street under the direction of Leon W. Goldrich, Ph.D., director of the bureau. In its first experimental year the clinic will concentrate on the district from Forty-Fourth to Eighty-Seventh Street between Fifth Avenue and the East River. The work of the bureau has been organized into three divisions: the educational division, which will concern itself with parent education; the "liaison" division, consisting of representatives of city schools to serve as a link between the bureau and the schools, and a third division, to maintain relations with social agencies.

Graduate Course in Physical Therapy.—A six weeks' course in physical therapy for qualified graduates in medicine will be given at Columbia University College of Physicians and Surgeons, beginning March 15. The course will be limited to twelve and will not be given unless eight apply. It is divided into two weeks of lectures and demonstrations, which will be given at the College of Physicians and Surgeons, two weeks of clinical demonstrations, and two weeks of supervised clinical practice in several hospitals in the city. Instructors will be Drs. Norman E. Titus, William Bierman, Charles R. Brooke, Harold M. Herring, Cassius Lopez-de Victoria, Madge C. L. McGuinness, Robert Muller, Randolph Raynolds and William B. Snow, Jr. The fee for the course is $150.

Demonstrations in Physical Therapy.—The Medical Society of the State of New York, through its committee on public health and medical education, sponsored a series of conferences and demonstrations on physical therapy in traumatic conditions for members of medical societies of New York and Bronx counties at the New York Academy of Medicine during February. Physicians in charge were Drs. William V. Healey, "Indications and Contraindications"; Heinrich F. Wolf, "Uses and Technic of Superficial Health Measures"; William Bierman, "Uses and Technic of Diathermy"; Kristian G. Hansson, "Uses and Technic of Massage and Therapeutics"; Richard Kovacs, "Electrodiagnosis: Galvanic and Low Frequency Currents," and Herman L. Reis, "The Compensation Viewpoint."

Society News.—Dr. Joseph H. Globus addressed the Medical Society of the County of Queens, February 23, on "Brain Tumors: Anatomy, Diagnosis and Management." The society has recently authorized the formation of a section on internal medicine and pathology.——Among other features a symposium on the heart was given at the meeting of the International and Spanish-Speaking Association of Physicians, Dentists and Pharmacists, February 19, by Drs. Russell L. Cecil, Harold E. B. Pardee and Carl P. Sherwin.

Physicians' Art Exhibit.—Two hundred and eighty-one exhibits of paintings, sculpture, prints and objects of art created by seventy-three American physicians make up the annual show of the New York Physicians Art Club, now in progress at the New York Academy of Medicine. According to the New York *Times*, the work is conservative and there is a preponderance of outdoor subjects, which indicates that for the physician art is largely a vacation activity. Thirteen contributors from outside New York are represented, including two from California. Dr. Louis C. Schroeder is secretary of the club.

NORTH DAKOTA

Society News.—At a meeting of the Cass County Medical Society, Fargo, January 25, speakers were the following physicians from Minneapolis: Drs. Chester A. Stewart, "Resolving Parenchymal Tuberculosis of First Infection in Infancy"; Solon Marx White, "Groundwork for Medical Service"; James M. Hayes, "Treatment of Acute Empyema of the Gallbladder"; Walter A. Fansler, "Cancer of the Rectum," and Dr. Edward L. Tuohy, Duluth, Minn., "Chronic Nontuberculous Lung Lesions."——Dr. Avery D. Prangen, Rochester, Minn., was the guest speaker at the midwinter meeting of the North Dakota Academy of Ophthalmology and Oto-Laryngology, Fargo, February 13; his subjects were early management of strabismus, operative treatment of strabismus, and problems and procedures in refraction.

OREGON

Meeting of Medical Alumni.—The annual meeting of the Alumni Association of the University of Oregon Medical School will be held at the university, March 7-9. Disorders of the heart will be the principal topic for discussion, with Dr. William C. Munly, San Francisco, as the guest speaker. Eighteen clinics covering general and special phases of medicine and surgery are scheduled.

PENNSYLVANIA

Society News.—Dr. Hugh R. Robertson, Warren, discussed the history of anatomy in his address as retiring president of the Warren County Medical Society, January 18.——Dr. George Harlan Wells, Philadelphia, addressed the York County Medical Society, January 16, on treatment of pneumonia. At the society's annual banquet, January 7, Drs. Spencer M. Free, DuBois, and Wilmer Krusen, Lansdowne, spoke on "Sentiment in a Doctor's Life" and "The Doctor in Literature," respectively.——Dr. John R. Caulk, St. Louis, will address the Pittsburgh Urological Association, March 14, on "Use of the Cautery Punch in Relief of Urinary Obstruction Caused by Carcinoma of the Prostate."——At a meeting of the Pittsburgh Academy of Medicine, February 23, Dr. Charles C. Guthrie presented a "Summary of Results of Twenty Years' Experimental Study of the Heart," and Dr. Robert C. Grauer, a paper on "Practical Aspects of Calcium Metabolism in the Light of Recent Experimental Study."——Drs. Elmer H. Funk, Philadelphia, and Samuel B. English, Glen Gardner, N. J., were the guest speakers at the forty-second winter meeting of the Lehigh Valley Medical Association in Allentown, January 28. Dr. Funk spoke on diseases of the kidneys and Dr. English on compression of the lungs.——Dr. John A. McGlinn, Philadelphia, addressed the Berks County Medical Society, February 9, on "Control of Uterine Bleeding."——Dr. Donald Guthrie, Sayre, addressed the Erie County Medical Society, Erie, February 2, on early diagnosis and treatment of acute intestinal obstruction.

Philadelphia

Society News.—Dr. William H. Kraemer, Wilmington, Del., was elected president of the Alumni Association of Jefferson Medical College at the thirty-sixth annual meeting, February 18, at the college.——Dr. Calvin M. Smyth, Jr., delivered the postgraduate seminar of the Philadelphia County Medical Society, February 26, speaking on traumatic surgery.——At a meeting of the Philadelphia Neurological Society, February 26, speakers were Drs. Melbourne J. Cooper, "Tumors of the Gasserian Ganglion"; Ross H. Thompson, "Focal Enlargement of the Temporal Bone as a Sign of Brain Tumor"; George Wilson and Murray M. Friedman, "Hereditary Cerebellar Ataxia."

Personal.—Dr. Charles E. Bricker, said to be the oldest city police surgeon in point of service, has resigned, effective, March 1, because of ill health. He was appointed in 1884.——

Dr. Robert A. Schless was appointed acting chief of the Bureau of Charities and Correction, February 11, by Clinton R. Woodruff of the department of public welfare.

Da Costa Lecture.—The second annual lecture under the John Chalmers Da Costa Foundation, established in 1930, will be delivered by Dr. Thomas A. Shallow, professor of surgery, Jefferson Medical College, before the Philadelphia County Medical Society, March 9, on "Diverticulum of the Esophagus." Dr. Da Costa delivered the lecture in 1931, reviewing his forty years' work in surgery (THE JOURNAL, March 14, 1931, p. 871).

SOUTH CAROLINA

Personal.—Dr. D. Lesesne Smith, Spartanburg, has been appointed a member of the state board of health to succeed the late Dr. Davis Furman, it is reported.

Bills Introduced.—S. 1286, to amend the pharmacy practice act, proposes to permit any licensed physician to obtain, without examination, a license to practice pharmacy. H. 1520 proposes to create a commission of charitable institutions to assume and exercise all powers, duties and functions now exercised by the superintendents of the state hospital, the state training school and the John de La Howe industrial school. H. 1521 proposes to abolish the board of medical examiners and the board of pharmaceutical examiners and to vest their respective powers, duties and functions in the state medical college.

VIRGINIA

Third McGuire Lecture.—Dr. James S. McLester, Birmingham, Ala., delivered the third annual Stuart McGuire Lecture of the Medical College of Virginia, in Richmond, March 4, on "Nutrition in Its Newer Aspects." The McGuire Lecture was established in recognition of the service of Dr. McGuire to the college, to medical education and to surgery.

Bills Introduced.—H. 181 proposes that the health commissioner (1) shall be the executive officer of the state board of health; (2) shall be a physician, a graduate of a medical college recognized by the Virginia State Board of Medical Examiners, and (3) shall be skilled and experienced in the administration of public health duties and versed in sanitary science. H. 196 proposes to accord liens to hospitals treating persons injured in accidents, on any judgments or settlements obtained by the injured persons by reason of their injuries. H. 222 proposes to repeal that section of the law regulating the sale of "hypnotic drugs" which requires that such drugs shall not be sold or given away except on the written prescription of a licensed physician, dentist or veterinarian. S. 270, to amend the medical practice act, proposes (1) that in proceedings against a person for practicing medicine or any branch thereof, without a license, the burden of proof shall be on the defendant to establish his right to practice; (2) to authorize the board of medical examiners, to revoke or suspend a license of a person who is grossly ignorant or careless in his practice, and (3) to state in detail the procedure to be followed in revoking a license.

GENERAL

Change in Date of Meeting.—The American Association of Pathologists and Bacteriologists will meet in Philadelphia, April 28-29, instead of March 24-25, as previously announced. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Ohio, is the secretary.

Memorial to War Dietitians.—A memorial to the dietitians who served in the World War, given by the American Dietetic Association, was unveiled in the American Red Cross Building, February 6. Among the speakers was Major-Gen. Robert U. Patterson, surgeon general of the U. S. Army, on "The Future of the Dietitian."

Midwinter Clinic.—The American Association of Obstetricians, Gynecologists and Abdominal Surgeons will hold its midwinter clinic in Philadelphia, March 7. The group will visit in turn for surgical, gynecologic and obstetric clinics the following hospitals: Joseph Price Memorial, Temple University, Stetson and Jefferson, including Curtis Clinic. After a dinner at the Union League the guests will hear addresses by Drs. James W. Kennedy and Barton Cooke Hirst, on "Joseph Price, the Man, Philanthropist and Surgeon" and "Development of Obstetrics and Gynecology in Philadelphia," respectively, and will see a motion picture on the "Ectopic Heart," presented by Dr. I. Charles Lintgen.

Pacific Coast Obstetrical and Gynecological Society.—At a recent meeting in San Francisco, the Pacific Coast Obstetrical and Gynecological Society was organized. Dr. Frank W. Lynch, San Francisco, was elected president, and Dr. Albert L. Mathieu, Portland, Ore., was made president-elect. Dr. Clarence A. DePuy, Oakland, was elected secretary. The object of the society will be to organize members of the medical profession who limit their practice to obstetrics and gynecology for the promotion of the highest ethics of the specialties. The membership is composed of active, senior and honorary members. The active membership is limited to fifty. The next meeting of the society will be held in Los Angeles in November.

Society News.—The American Psychiatric Association will hold its annual meeting in Philadelphia, May 30-June 3.—The American Urological Association will meet, May 30-June 2, in Toronto.—Dr. Ira Solomon Wile, New York, was elected president of the American Orthopsychiatric Association at its annual meeting in Baltimore, February 18-20; Dr. Frederick H. Allen, Philadelphia, was elected vice president, and Dr. George S. Stevenson, New York, reelected secretary.—The American Association of School Physicians will hold its fifth annual meeting in Washington, D. C., October 21-22, preceding the meeting of the American Public Health Association, October 24-27.—Dr. Clarence A. Shore, Raleigh, was elected president of the Tri-State Medical Association of the Carolinas and Virginia, at the annual meeting in Raleigh, N. C., February 15-17. Among speakers at the meeting were Drs. John Shelton Horsley, Richmond, on "Double Harelip"; Wingate M. Johnson, Winston-Salem, N. C., "Influence of General Infections on Local Lesions"; Charles S. White, Washington, D. C., "Reidel's Thyroiditis," and Tom Douglas Spies, Cleveland, "Pellagra a Disease of Unknown Etiology—Response to an Unorthodox Diet." Dr. Henry Mason Smith, Tampa, Fla., made an evening address, February 15, on "The Cerebral Mechanism of Sleep and Some of Its Disorders."

Medical Bills in Congress.—*Changes in Status:* S. 100 has passed the Senate, authorizing any institution heretofore incorporated under the laws of the District of Columbia, operating exclusively in a foreign country, to use the words "American," "Federal," and similar words in its title. S. 695 has been favorably reported to the Senate, with amendment (Senate Report No. 295). The bill originally proposed among others things to authorize an appropriation for $20,877,000 for additional hospitals and domiciliary and outpatient facilities. The amendments offered by the committee strike from the bill everything relating to such proposed construction and only provide for a reduction in payments to veterans under the Disabled Emergency Officers Retirement Act while they are being maintained in institutions by the Veterans' Administration. S. 894 has passed the Senate, directing the retirement of acting assistant surgeons of the United States Navy at the age of 64 years. S. 3110 has passed the Senate, with an amendment, authorizing the Secretary of the Interior to arrange with the states for the education, medical attention and relief of Indians. H. R. 9699, the Treasury and Post Office Departments appropriation bill, has been reported favorably to the House. It carries an appropriation of $11,421,413 for the United States Public Health Service, including the sum of $300,000 for special studies of, and demonstration work in, rural sanitation. The bill also proposes an appropriation of $1,625,000 for the Bureau of Narcotics. *Bills Introduced:* S. 3759, by Senator Norbeck, South Dakota, to construct and equip a hospital for Indians at Wagner, S. D. S. 3766, by Senator Thomas, Oklahoma, to provide that any ex-service person shown to have had a tuberculous disease of a compensable degree for a period of five or more consecutive years, and whose disability on account of such disease during such period has been rated as total and temporary, shall be held to be totally and permanently disabled for all purposes under the World War Veterans' Act. S. 3781, by Senator Costigan, Colorado, to authorize an appropriation of $100,000 to recondition the buildings at the veterans' hospital, Fort Lyon, Colorado. S. 3800, by Senator Copeland, New York, to provide for federal cooperation with the several states in the physical restoration, education, vocational guidance and vocational education of "any person below the age of twenty-one years who by reason of physical defects or infirmities, whether congenital or acquired by accident, injury, or disease, are or may be expected to be totally or partially incapacitated for participation in the educational and vocational activities expected of normal persons." S. 3818, by Senator Copeland, New York, to provide for the vocational rehabilitation of persons disabled in industry or otherwise. S. 3819, by Senator Copeland, New York, granting permits for the importation or manufacture for nonbeverage purposes of spirituous liquors of a particular kind or quality where the supply in the United States is insufficient to meet the current needs therefor. H. Res. 161, by Representative Rayburn, Texas, to provide a special rule for the consideration of H. R. 7525, the Bankhead rural health, and maternity and infancy hygiene bill. This resolution is

before the House Committee on Rules. H. R. 9260, by Representative Crowe, Indiana, to provide additional compensation for World War veterans for the loss of use of an eye in active service in line of duty. H. R. 9307, by Representative James, Michigan, to repeal the Emergency Officers' Retirement Act.

Deaths in Other Countries

Geheimrat Max von Frey, Ordinarius at the Physiological Institute, University of Würzburg, Bavaria, Germany, known for his research in the field of tactile, pain and caloric sensibility, died, January 25, in his eightieth year.

Government Services

U. S. Public Health Service

The following physicians have recently entered the public health service and have been assigned to active duty as follows: Asst. Surgs. David C. Elliott assigned to the marine hospital at Louisville; Benton Oliver Lewis, assigned to duty at Roma, Texas; Charles T. Meacham, Jr., Kinston, N. C., assigned to the marine hospital, Stapleton, N. Y., and Henry L. Wollenweber, Los Angeles, assigned to the marine hospital at San Francisco; Asst. Surg. Ralph Gregg has been promoted and commissioned as passed assistant surgeon, effective Dec. 28, 1931; P. A. Surg. Langdon R. White, relieved at Helena, Mont., and assigned at Albuquerque, N. M.; P. A. Surg. Elmer A. Carberry, relieved at San Francisco, and assigned at Manila, P. I.; P. A. Surg. George G. Holdt, relieved at Honolulu, Hawaii, and assigned at marine hospital, San Francisco; Surg. Henry A. Rasmussen, relieved at Cebu, P. I., and assigned at marine hospital, San Francisco.

Change of Station in the Navy

Lieut. Warren G. Wieand from navy hospital, Parris Island, S. C., to second brigade, U. S. Marines, Nicaragua; Lieut. Comdr. Oscar Davis, from navy hospital, Pensacola, Fla., to first brigade, U. S. Marines, Port au Prince, Haiti; Lieut. Comdr. Francis E. Locy from first brigade, U. S. Marines, Haiti, to navy hospital, League Island, Philadelphia; Lieut. Comdr. Leon W. McGrath from first brigade, U. S. Marines, Haiti, to navy hospital, Annapolis, Md.; Lieut. Comdr. John T. Stringer from first brigade, U. S. Marines, Haiti, to navy academy, Annapolis; Lieut. Edward P. Kunkel from navy station, Guam, to Navy Medical School, Washington, D. C.; Lieut. Edward T. Knowles from navy hospital, Mare Island, California, to navy station, Guam; Lieut. Comdr. Russell I. Craig from navy yard, New York, to Asiatic Station; Lieut. Bruce M. Summers, from navy training station, Newport, R. I., to Asiatic Station; Lieut. Burr Dalton, from navy hospital, Newport, to Asiatic Station; Lieut. Freeman C. Harris, from navy hospital, New York, to second brigade, U. S. Marines, Nicaragua; Lieut. Comdr. Elmer F. Lowry, from second brigade, U. S. Marines, Nicaragua, to treatment, Norfolk Navy Hospital, Portsmouth, Va.; Comdr. Gordon D. Hale, from Guardia Nacional Managua, Nicaragua, to navy hospital, Mare Island, Calif.; Comdr. John F. Riordan, from Norfolk Navy Hospital, Portsmouth, Va., to navy hospital, Pearl Harbor, T. H.

The Government Needs Physicians

Examinations are announced by the U. S. Civil Service Commission for the position of senior medical officer, medical officer and associate medical officer (cancer diagnosis and treatment). Applications must be on file with the U. S. Civil Service Commission at Washington, D. C., not later than March 22. Examinations are to fill vacancies in the veterans' administration throughout the United States. The entrance salaries range from $3,200 to $4,600 a year, less $570 a year for quarters, laundry and full subsistence when furnished. Competitors will not be required to report for examination at any place but will be rated on their education, training and experience. Applicants must have been graduated with a degree of doctor of medicine from a medical school of class A standing, senior medical officers or medical officers not more than twenty years and associate medical officers not more than three years prior to March 22, 1932. In addition, certain specified experience is also required. Further information may be obtained from the secretary of the U. S. Civil Service Board of Examiners at the postoffice or customhouse in any city, or from the U. S. Civil Service Commission, Washington, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 30, 1932.

Malformations of the Body from a New Point of View

In his lectures at the Royal College of Surgeons, Sir Arthur Keith said that fifty years ago Sir John Bland Sutton wrote a book to prove that in making its great evolutionary advances nature used methods akin to those of disease. An illustration was to be seen in the human body during the second and third months of development. Hernia was then produced outside the abdominal cavity and within the umbilical sac, where the greater part of the intestine underwent differentiation and growth. At the same time, preparations were being carried forward within the abdomen for their final fixation there. It was interesting to compare the modern operation for the radical cure of hernia with that which had been discovered by nature. At the end of the third month of development, the hernia at the umbilicus was cured automatically in a few days; the intestine was drawn back into the abdomen and the opening closed. Prof. J. E. S. Frazer has shown how this takes place. First, the walls of the abdomen expand by growth, so that room is made within for the intestine. Secondly, the mesenteries which attach the intestine to the posterior abdominal wall shorten and widen their attachments and draw in the intestine in a fixed and orderly manner. Thus the hernia, which has served a developmental purpose, is cured. But this process fails in 1 child in 3,000, who is born with an umbilical hernia.

How did hernia at the umbilicus become a normal process in the development of the higher animals? It began when a part of the intestine had to undergo a premature development to contain a store of yolk for the developing fish or frog until it could fend for itself. The developing bowel of the dogfish grows over, envelops and encloses its stock of yolk. At first the fish swims about with the yolk sac suspended from its body, being born with a congenital umbilical hernia, the covering of which is supplied by the body wall. As the yolk sac empties, the hernia is reduced, leaving no scar. When land-living, air-breathing vertebrates were evolved, the skin covering the yolk sac became more important than the sac itself. By precocious development and enormous expansion of the covering of the yolk sac, a hood was formed. This grew over and enclosed the developing embryo in a double envelop, the inner of which contained water. Thus the delicate tissues of the embryo were submerged in and supported by water, as are the eggs of the fish or frog, which can develop only in a fluid medium. The outer envelop serves as a lung. The umbilicus is the scar left at the point of detachment. Part of the body wall has been sacrificed for the development of the individual, and the umbilical scar is the token of this. In the higher mammals, including man, matters are carried a stage further. In the earlier stages of development, all efforts are expended on an extensive formation of that part of the body wall which in lower vertebrates (reptiles and birds) forms the envelops of the embryo. Development within a rigid shell and development within a living contractile uterus require different methods. The developing human ovum has to burrow into the living membrane of the uterus and in this position throw out its envelop—amnion and chorion. During this early period, from the eighth to the fourteenth day, the embryo itself remains in abeyance; all efforts are spent on the development of the coverings and the placenta, which have been evolved out of that part of the body wall which covers the yolk sac of fish and frog. The epithelial covering of the skin becomes the wildly growing devouring trophoblast. Part of the body wall becomes drawn out to form the umbilical cord. It is therefore not surprising that at a certain stage of develop-

ment the cord contains coils of intestine, nor, when the elaborate processes for the withdrawal of the intestine from the sac are considered, that children should occasionally be born with a developmental hernia unreduced.

Sphalinger Discloses His Secrets

For many years, Sphalinger's treatment of tuberculosis has been brought before the British public. Extravagant claims were made for it, principally in the lay press, where campaigns describing him as a scientist who had spent his fortune in investigation for the benefit of humanity have been carried on from time to time. In 1922 the British Red Cross voted a large sum to enable him to produce his remedies, and the ministry of health offered facilities for their trial under scientific supervision. But while appealing for funds, Sphalinger resolutely refused to disclose the method of production of his vaccine, declaring that this would lead to improper exploitation. Hence the medical profession, with a few exceptions, ignored him. At last he has changed his tactics, and at a meeting held in a private house in London attended by some persons of social but not of medical importance (many of whom had given him financial support) he announced that his vaccine for immunization of cattle is prepared by culture of tubercle bacilli obtained from the slaughterhouse. A bovine body fluid (defibrinated serum, organ or tissue extract) is coagulated in an incubator at 65 C. When cold, there is spread on the coagulated surface a small quantity of normal (nonheated) bovine body fluid. These mediums are inoculated with native bovine bacilli (unaltered by passages on artificial mediums or through another animal species) and are incubated in the dark at from 38.5 to 39 C. As soon as the culture has sufficiently grown it is reinoculated on specific normal (unheated) bovine mediums, preferably liquid, consisting of defibrinated blood, serum, organ extract or tissue extract. These cultures are again incubated in the dark at the same temperature. The bacilli from them are collected and made into an emulsion, in the absence of oxygen, with distilled water or physiologic solution of sodium chloride. The emulsion is kept cool and in the dark until all the bacilli have died a natural death. It is necessary to keep a vaccine a year or more before it can be used. It is then harmless, though effective for immunization. For man the vaccine comprises a mixture of three types of vaccine: (1) the bovine vaccine described, (2) a vaccine made from bovine bacilli grown in the dark at 37.5 C. on human defibrinated blood, serum, ascitic or pleural fluids, and (3) a vaccine made from human bacilli grown on the last mentioned mediums. The human bacilli should be isolated from a human lesion without animal passage to avoid adaptation to another species. The human and bovine culture mediums must come from tuberculosis-free bodies. Sphalinger says that, while there are fifteen kinds of tuberculin on the market, his is the only one that confers immunity.

Poisoning by Arsenic in Wall Paper Rendered Gaseous by Molds

An inquest was held on a girl, aged 7 years, who lived in the forest of Dean. The county analyst found 2.65 mg. of arsenic in her body. In the sitting room of her house he discovered that arsenic was being given off in gaseous form from the wall paper, which was affected by mold. In samples of the paper from the dry parts of the wall he found 8.3 parts of arsenious oxide per million, but where the mold grew there were only 2.3 parts; in the plaster there were 91 parts. The spores of the mold attached themselves to the damp paper, grew vigorously, and generated a gaseous form of arsenic. He also found traces of arsenic in the systems of other members of the family. Prof. H. A. Scholberg, honorary pathologist to the Cardiff Infirmary, said that what he considered had happened was that the flour paste used for putting on the paper provided a medium for the growth of the mold, which then liberated the arsenic. The jury returned a verdict of death from dysentery, with arsenical poisoning as a contributory cause.

Crystalline Vitamin D

At a meeting of the Royal Society, F. A. Askew, R. B. Bourdillon, H. M. Bruce, R. K. Callow, J. St. L. Philpot and T. A. Webster reported that further purification of vitamin D had been achieved by esterification of the distillate formerly described as "calciferol." The purified product has an activity twice as great as any previously recorded and appears to be identical with vitamin D_2 of Linsert and Windhaus. It produces toxic effects when given in excessive doses. A simplified process was described for preparing the pure product from the irradiation products of ergosterol without distillation.

PARIS

(From Our Regular Correspondent)

Jan. 20, 1932.

Annual Assembly of the Confederation of French Medical Syndicates

The annual assembly of the confederation of the French medical syndicates is a convention of the delegates chosen by the medical syndicates of the various departments of France and is devoted solely to the consideration of professional problems. This last assembly was characterized by considerable agitation and gave rise to heated discussions on problems that are disturbing the minds of French practitioners. The most important question considered was the law pertaining to social insurance. By their concerted action and by threatening to refuse to cooperate with the government in the application of this law, the syndicates have succeeded in creating for themselves a tolerable situation, since persons holding such social insurance are compelled to pay their physician immediately themselves and are then reimbursed by the departmental sick benefit funds for a certain proportion of the sum expended. In this manner the physician is always certain of being paid the fee that he asks, and the patient is absolutely free to choose the physician that he prefers. But this situation is threatened in various ways; for the law is based on an unfortunate conception that is costly for the insured, for the employers and for the state, and the government is seeking to take away from the physicians, in a roundabout way, a part of the guarantees that it was obliged to concede to them at the time the law was voted on. Thus, a new bill has been proposed that provides for the administration of the sick benefit funds by the old mutual aid societies, which have not ceased to exist, in spite of the fact that they fulfil the same purposes as the law, and which continue to exert a wide influence, from the political point of view, on the members of parliament. The confederation of the medical syndicates has decided to oppose this bill by every available means; for these societies apply a much lower fee schedule than the regular fee schedule of the physicians. Furthermore, the societies pay the physician according to the societies' schedule; the physicians do not collect from the patient. If the pending bill is passed, all the advantages that the syndicates secured for the medical profession at the time the law was voted on will be lost. The confederation protested likewise against a proposed bill that would lower the fee schedule agreed on for occupational accidents, on the ground that, since this agreement was entered into, there has been a decline in the cost of living. The statement is inaccurate, and, furthermore, there has been considerable increase in the professional taxes imposed on physicians. Long discussions were carried on with regard to the creation of centers of diagnosis, a proposal originating with the administration of the sick benefit funds. Many of the representatives of the medical syndicates were systematically opposed to the idea, because they feared it would result in the diminution of fees for the physi-

cians who specialize in radiologic and biologic examinations. The general secretary of the confederation, Dr. Cibrié, who was attacked at first for the support he gave the project, succeeded, by force of eloquence, in convincing the assembly that the syndicates would find it to their advantage to take the lead in the creation of such centers, provided the physicians serving in the centers would agree not to accept private patients outside the centers, would confine themselves to patients sent to them by the practitioners, and would accept the fee schedule adopted by the syndicates. This would be the best means of preventing the health insurance societies from establishing such centers themselves, which would entail a much heavier financial loss for the members of the syndicates.

A Model Radiologic Service in Paris

At the Hôpital St. Louis, a large radiologic service has been created that embodies all modern improvements imaginable. The minister of public health attended in person the opening of the new service. The institute was erected through the initiative of Dr. Belot, director of the service, who supervised himself all the details of the construction. A thick wall sheathed with sheets of lead insulates completely the roentgen apparatus from the booth occupied by the patients and the operators. The operators control the apparatus from a distance. The floor is entirely insulated by a thick layer of rubber. In addition to numerous dressing rooms for the patients, there are three rooms for radiologic diagnosis. The physician dictates his observations to secretaries, seated in an adjoining room, by means of a microphone and loud-speaker. The roentgenologist is enclosed in a special booth that assures him absolute protection. A powerful generator enables the operator to make roentgenograms of the lung at the rate of one every $^{3}/_{100}$ second. Dummy lifts are used to transfer the plates at once to the laboratories on the ground floor, where they are immediately developed and then placed in an electric drier. The radiotherapeutic service comprises ten rooms. The patients are enclosed in a booth and the nurses control the apparatus from without, while they supervise the patient through a small window in the wall. There are two sets of equipment for superficial roentgenotherapy, an apparatus for moderately penetrative roentgenotherapy, and three sets of equipment for high voltage roentgenotherapy with 250 kilowatts. The generators are coils with a constant tension of 30 milliamperes. The Coolidge tubes, standard type, are enclosed in opaque containers. In other rooms are the various types of apparatus for physical therapy: mercury lamps, diathermic devices, arc lamps, and the like; the filing cabinets; in addition, there are assembly and recreation rooms. Foreign physicians who visited the institute at the time of holding of the International Radiologic Congress stated that nowhere else is there an institute so complete and so modern. From the standpoint of capacity, 10,000 patients a year can be given diagnostic examinations and 30,000 patients can receive widely divergent forms of treatment each year.

Distribution of a Large Government Appropriation

Mr. Camille Blaisot, minister of public health, has decided on the manner of distributing the sum of 385,000,000 francs, which has been placed by parliament at the disposal of his department as a portion of the appropriations made for the improvement of the national equipment for the promotion of public health. The dominant idea governing the distribution was the desire to use the appropriated sums chiefly for undertakings that would necessitate the employment of a large amount of man power. The distribution as affecting hospital centers was influenced, in part, by a consideration of the needs and the local possibilities for absorption of the appropriated sums during 1932. For the hospital units the subsidies allowed amount to 180,000,000 francs. Subsidies amounting to 30,000,000 francs were accorded to societies that support the crusade against child mortality. The sum of 5,000,000 francs was granted to the vacation camps and the camps located adjoining hot springs. As regards the organizations carrying on the crusade against the social diseases, it will be observed that the anticancer centers are to receive 27,000,000 francs; the societies devoted to the eradication of venereal disease, 16,000,000; the sanatoriums, 33,000,000; the preventoriums, 21,250,000; the antituberculosis dispensaries, 2,960,000, and the schools for the training of nurses, 15,590,000. Certain societies that have an appeal from the scientific or social point of view are to receive efficient financial aid; such, for example, as the Institut du radium of the Curie Foundation, 12,500,000 francs; the anticancer center at Villejuif, 12,500,000; the Renaissance sanitaire (hospitals of the mutual aid societies), 11,500,000; the Ecole de puériculture de la Faculté de médecine de Paris, 8,091,000; the Foch Foundation, 4,000,000, and the society for the mutual protection of railway employees (Etrembrières, Haute-Savoie), 2,000,000.

Budget of the Assistance Publique in Paris

The municipal council of the city of Paris has finally accepted the budget of the Assistance publique for the year 1932. The director of the service, Mr. Louis Mourier, had been compelled to make a demand that the Assistance publique be reimbursed by the department of social insurance for the expenditures occasioned by the hospitalization of its insured members. The sum set aside for the purpose was 62,000,000 francs; but, during the year, this allowance was reduced to 22,000,000 francs, of which only 13,000,000 francs has been turned over. Mr. Mourier holds that, in order to regulate definitely the relations between the Assistance publique and the department of social insurance, the law should be modified and a lump sum agreed on, which, after careful calculations, he placed at 54,600,000 francs. Such a system would obviate a great deal of paper work, which would constitute the best argument in favor of the change in the law. He will bring the matter before the government authorities at a later date. The council then agreed on the subsidy that the city was to allow the Assistance publique, which was fixed at 321,470,617 francs, 3,470,617 of which was for the bureaus of public charity. It approved likewise the various proposals of the chairman of the budgetary committee concerning the erection of hospitals, and repairs and improvements in the existing hospitals.

BERLIN

(From Our Regular Correspondent)

Jan. 18, 1932.

Automobile Accidents Due to Drunkenness

Both the Prussian ministry of commerce and industry and the ministry of the interior have drawn attention to the fact that numerous traffic accidents occurring in recent months have been due to intoxicated drivers. It is emphasized that a small quantity of alcoholic beverages is sufficient to reduce materially the steadiness, the keenness of observation and the reaction time of the driver. The driver of an automotive vehicle—whether public or private—who, in compliance with the ordinance affecting the traffic of automotive vehicles, is "under strict obligations to exercise proper care in the driving and management of his vehicle," violates the law if he drives his car after he observes that he is under the influence of alcohol. In such an event he is under obligations under all circumstances to desist from driving his car. In the future, every driver of an automotive vehicle who causes an accident as a result of the ingestion of alcoholic beverages will without exception be deprived of his license. According to a decision of the supreme court, no consideration should be given to the financial status of the driver or to the contention that the financial position of the driver would be jeopardized if his

license should be canceled. In the schools that give instruction in automobile driving, special emphasis should be placed on the consequences of such violations.

Eugenics as a Subject for Medical Students

The state council of Prussia will in the near future consider a proposal that the study of eugenics and of the theory of heredity be made obligatory for physicians, teachers and theologians and a subject for examination for physicians. The proposed legislation provides also that the pupils of the upper classes in the grammar schools, high schools, trade schools and continuation schools be given instruction concerning the essential significance of eugenics and the theory of heredity. Furthermore, an exchange of eugenic health certificates before being engaged to marry, and the widest possible spread of knowledge in these fields to the whole *reich* are demanded. A pamphlet showing the reasons for such legislation, prepared by Dr. Struve, refers particularly to the research of Prof. Dr. Muckermann and of Dr. v. Verschuer of the Berlin Kaiser-Wilhelm-Institut and gives a picture of the danger associated with the neglect of eugenic ideas as affecting the future of the people.

Hockey Injuries

The public does not usually have clear ideas in regard to the frequency of injuries resulting from participation in sport. It will doubtless occasion surprise that statistics covering 2,152 hockey games, in which 23,672 players participated, show that only 0.33 per cent of the players suffered injuries. This result was reached by Privatdozent Dr. Arnold of the department of athletics at the University of Leipzig. The injuries were distributed as follows: men players, 0.35 per cent; male juveniles, 0.25 per cent, and women and girls, 0.35 per cent. The low percentage in male juveniles is explained by the facts that they do not enter into the game quite so vigorously as do adults, and that their greater elasticity in case of falls and collisions reduces the danger. If one considers only the typical hockey injuries, those that are caused by hockey sticks and balls, and excludes those that occur also in connection with other sports, the proportion of hockey accidents is reduced to 0.19 per cent. Arnold observed twice as many injuries from hockey sticks as from the puck. Among women players, however, injuries resulting from the driven object were more frequent. Injuries from hockey sticks concern chiefly the head and only secondarily the lower extremities — less frequently the upper extremities and the trunk. Injuries inflicted by the driven object have a similar distribution. Indirect injuries, on the other hand, concern more frequently the limbs, and more rarely the head and trunk. Almost two thirds of the injuries in the narrower sense are injuries of the soft parts. Injuries of the bones and joints follow but are much less frequent. Fractures are, however, rare. Commensurate with the predominance of the stick and ball injuries, persons so injured recover rapidly. However, after indirect hockey injuries, considerable time usually elapses before injured persons can again take up the game.

The Storing of Roentgen Films

A police ordinance concerning the storing of roentgen films went into effect in Prussia, January 1. The ordinance applies not only to hospitals but to all other institutions for the care of health and the promotion of public welfare: care-taking and consultation centers, policlinics, ambulatoriums, laboratories and the offices and "institutes" of practicing physicians. There is a general prohibition against leaving roentgen films around open for any length of time. They must not be kept permanently in sickrooms, even when wrapped or enclosed in holders. Various regulations that presuppose a far-reaching control are imposed also for unused and for developed films, files and supply houses. In buildings that are permanently occupied by human beings, the storing of supply stocks is permitted only in the top story, and the use of the building for that purpose must be in accordance with the municipal fire regulations, which applies also to store rooms that serve solely as depositories of films. Special regulations must be followed with reference to heating, the installation of electric lights and protection against lightning. Not only the hospitals but also the general practitioners must secure permission to store roentgen films. These safety provisions are not applicable if roentgen safety films are used exclusively or stored by themselves. The safety films bear on the package and on each film the name "DIN-Sicherheitsfilm." This designation can be applied only to a film which, if a piece 20 cm. long and 3.5 cm. wide is held vertically and is lighted with a match at the lower edge, after removal of the flame either ceases to burn or requires sixty seconds for its complete combustion.

The Anatomy of the Child

The "Museum des Kindes" is to be opened, April 1, in the building of the Allgemeine Ortskrankenkasse in Hamburg. For this purpose, the method of the Leipzig anatomist Spalteholz for the making of anatomic preparations transparent has been further developed. The object of the exhibit is to make an exact knowledge of the healthy and the sick child available to every one. The exhibit will comprise 150 preparations that illustrate the normal and pathologic anatomy of the child, showing the development from the third day of embryonic life up to the ninth month inclusive. The original preparations will be finely executed and great importance will be laid on technical accuracy. For example, one will be able to see the stained blood vessels and the internal organs.

POLAND

(From Our Regular Correspondent)

Jan. 5, 1932.

Polish Conference on Tuberculosis

The fourth Polish Conference on Tuberculosis was held at Zakopane, a climatic resort on the slope of the Tatra Mountains, in September, 1931. The sessions were held under the chairmanship of Dr. Severin Sterling, dean of the Polish phthisiologists, in the sanatorium of the Polish Red Cross Society. Especially interesting were the papers of Drs. Michałowicz and Popowski of Warsaw, and of Skibiński of Zakopane, which dealt with the relation that exists between the allergic manifestations and the resistance of the organism in tuberculosis. Dr. Skibiński expressed the view that pulmonary tuberculosis should be treated by introducing active bacilli into the patient. Children under 2 years of age should be protected against infection, and should be immunized by inoculation before reaching the age of puberty. It is more difficult to contract tuberculosis after puberty, but the infection is then more dangerous. Skibiński considers the installation of isolation services in the sanatoriums as superfluous, for such action tends to increase fear. Supplementary infections are not always harmful; they sometimes develop a greater resistance than the elementary infection and may aid in the treatment of the existing disease.

The conventionists visited the sanatorium for teachers and the hospital, and attended the dedication of a new health center in Zakopane. The following day, Dr. Etienne Rudzki lectured on the classification of tuberculous patients. The diagnosis must not be based solely on the physical examination but must take into account also the bacteriologic, serologic and radiologic tests. It must be discovered whether the tuberculous process is active or stationary. Not until after the establishment of a sure diagnosis should the patient be sent to an institution in keeping with his condition. All patients should be registered in the antituberculosis dispensaries. He advocated the application in Poland of the classification of Sterling, adopted by the first Polish Conference on Tuberculosis, held in 1925. As for the preventive treatment, it is applied to those who have not

developed as yet an active process but who come from a milieu contaminated by tuberculosis; also to suspects, and to patients who have passed through a congestion of the lungs or a surgical tuberculosis. The new-born who may have been contaminated by their environment should be subjected to a preventive inoculation and should be kept isolated as long as possible.

Patients affected with active tuberculosis receive clinical treatment at home and in the sanatoriums. When feasible, provision should be made in the dispensaries for pneumothorax treatment. The dispensaries should preserve their character of preventive institutions, after the pattern conceived by Philippe and Calmette. Patients in whom slight toxic symptoms have been discovered can be treated at home or in the dispensary. Patients who, it is thought, will recover their earning capacity within six months are sent to the sanatorium. Patients who present little chance of a complete recovery or a prolonged amelioration are candidates for the retreats, organized after the plan adopted in Norway.

Dr. Dabrowski of Warsaw emphasized the immense importance of the dispensary and approved the proposal to organize dispensaries in the hospitals. His paper was illustrated by a series of interesting slides.

Dr. Fiszer of Zakopane discussed a series of individual cases that required sanatorium treatment and gave some interesting details on present methods of treatment.

On the third and last day, Dr. Zychoń presented a paper on the advantages of an Alpine climate for the treatment of tuberculosis. Drs. Gaston Poix of France, C. Wroczyński, head of the Polish Red Cross Society, and G. Babecki of Warsaw presented papers on the rôle of social insurance in the crusade against tuberculosis. Dr. Wroczyński traced the historical development of the social insurance movement and explained the part played by the health insurance societies (*krankenkassen*) in the fight against tuberculosis. Dr. Poix, who read a paper on "The Rôle of Social Insurance in France in the Crusade Against Tuberculosis," explained the methods chiefly employed in the crusade against tuberculosis and emphasized the predominant rôle of the dispensary, where pneumothorax treatment is generally applied.

Dr. Babecki read a paper on a proposed merger for the social crusade against tuberculosis, in which he explained the work accomplished by the health insurance society in the domain of the crusade against this disease. The federation of the health insurance societies has appealed to the governmental, communal and private organizations to cooperate in the development of preventive measures. The speaker proposed the organization near large urban centers of colonies for the tuberculous which would be provided with sanatoriums for persons gravely ill, for persons suffering mild attacks, and for convalescents. There would be furthermore day sanatoriums and night sanatoriums, and industrial colonies in which convalescents will be given opportunities to earn their living.

After the presentation of papers, these ten resolutions were adopted without a dissenting vote:

1. The fourth Conference on Tuberculosis appeals to the people of Poland, and it urges it not to diminish its contributions in aid of the crusade against the great social scourge tuberculosis, the extension of which is again becoming more threatening, on account of unemployment and the misery that results therefrom.

2. The fourth conference, taking into consideration the economic condition of the country, as a result of which the sanatoriums are almost empty, advises against the erection of luxuriously equipped sanatoriums and of pseudosanatoriums and expresses the view that hospital-sanatoriums with moderate prices should be organized.

3. The fourth conference makes an appeal to all the governmental, communal and social institutions and to the institutions of social insurance to collaborate in the organization of the crusade against tuberculosis in their respective regions under the form of special associations, taking as an example the association for combating tuberculosis organized at Lodz (Poland).

4. The fourth conference considers it advisable that all the institutions that participate in the crusade against tuberculosis contribute funds for the creation of special colonies for the tuberculous where patients of all classes may find the best conditions for treatment and where patients and convalescents may work without injuring their health or endangering their entourage; whereas, if they were transferred to a different environment and were compelled to work under less favorable conditions, their condition would deteriorate, and, at the same time, they would prove a menace to their immediate environment.

5. The fourth conference, since there is in the Alpine region no secondary school possessing the character of a sanatorium, appeals to the government to supply this need, as soon as possible, by carrying out the plan of the minister of public instruction.

6. The fourth conference decides as follows with relation to the accepted designations for therapeutic institutions for the beneficiaries of social aid: (*a*) A sanatorium is an establishment, under professional management, to which are admitted tuberculous patients who require treatment and in whom the treatment can be expected to give marked and durable results. (*b*) A hospital-sanatorium is an establishment, under professional management, destined for the treatment of tuberculosis under any and all aspects susceptible of treatment, not excluding incurable cases. Such an establishment should have a special service termed "observation and diagnostic service."

7. The fourth conference, having in mind the great importance, in the social crusade against tuberculosis, attaching to prophylactic education, as applied to the younger generation, expresses the hope that the school physicians who have recently been temporarily removed from office, by way of retrenchment, may be reinstated as soon as the economic situation permits.

8. The fourth conference confirms the absolute need of enacting for Poland antituberculosis legislation, and appeals to the organizations concerned to elaborate, as soon as possible, the draft of such a regulation.

9. The fourth conference expresses furthermore these views: (*a*) All agencies of a professional character: general practitioners, dispensaries, hospitals and sanatoriums are authorized, and even under obligations, to interest themselves in the fate of patients and to wage constant warfare against tuberculosis. (*b*) The cost of treatment of the tuberculous patient should not be charged to his account alone, but should be borne in part by government, communal and social institutions. (*c*) Zakopane possesses the climatic conditions requisite for the treatment of tuberculosis. (*d*) A sanatorium with moderate prices for the benefit of the middle class should be erected in Zakopane. (*e*) A central institution should be provided in Zakopane for the study of tuberculosis.

10. The fourth conference expresses the conviction that the restoration of the ministry of public health, abolished several years ago, will not only exert a favorable influence on the advancement of health and hygiene in Poland but will likewise effect, in the long run, a great saving for the state treasury.

NETHERLANDS

(From Our Regular Correspondent)

Jan. 5, 1932.

Accidents Affecting the Circulatory System

The association for the combating of alcoholism has published a brochure on the accidents affecting the circulatory system, occurring in the Netherlands. This brochure may be considered a continuation of that published in 1929. The data collected include the accidents in all the cities, or communes, of more than 20,000 inhabitants (forty-six in all). In these communes there were 28,227 accidents affecting the circulatory system, 262 of which had fatal results, while 1,748 persons received grave, and 5,370 slight, wounds. These figures are higher than those for the previous year.

Accidents Affecting Circulatory System in Seven Communes in 1930

	Total Number of Accidents	Accidents Due to Automobiles	Percentage Due to Automobiles
Amsterdam	7,754	6,275	80.9
Rotterdam	4,830	3,561	73.7
The Hague	3,226	2,695	83.5
Utrecht	1,175	921	78.4
Groningen	1,180	889	75.3
Enschede	602	392	65.1
Leeuwarden	324	218	67.3

Accidents caused by street cars are not included in these figures. In thirty-six communes, 155 accidents affecting the circulatory system were caused by intoxicated drivers.

Postvaccinal Encephalitis

Dr. Josephus Jitta has presented to the permanent committee of the International Bureau of Public Hygiene a communication on postvaccinal encephalitis. In connection with 866,100

vaccinations against smallpox, performed in the Netherlands from 1924 to 1931, there were 186 cases of postvaccinal encephalitis, or 1 case to 4,656 vaccinations, on an average. It should be noted that since May, 1930, no case has occurred, although from May 1 to Dec. 31, 1930, 19,000 vaccinations were performed. The number of vaccinations performed in 1931 has not been announced; but, judging by the quantity of lymph distributed, the number may be estimated at 5,800, so that from May, 1930, to May, 1931, one may assume that at least from 24,800 to 25,000 vaccinations have been performed with not a single case of encephalitis having been noted. It appears so far from the statistics that early childhood is the period least affected. Although the public health service does not state that postvaccinal encephalitis may not occur in the first year of life, nevertheless, in a comprehensive circular, it advises physicians to vaccinate children during the first year, preferably between the ages of 3 and 6 months. A further factor that has been noted, and is worthy of consideration, is that vaccination at that age causes but little general reaction and yet furnishes adequate protection. The fact that, for the space of a year, no case of postvaccinal encephalitis occurred is an indication that the cases of encephalitis are becoming more and more rare.

Accidents and Suicides

In the *Geneskundige Tijdschrift der Rijksverzekeringsbank* of June, 1931, Dr. Van Lit discusses five cases of suicide (taken from the statistics of a health insurance society) that followed occupational accidents. When a person who suffers an accident commits suicide, it is reasonably certain that there is a relation of cause and effect, Van Lit stated. The first example that he cited was the case of a workman, aged 50, who had resumed his work after having suffered a fracture of the wrist, for which he had been allowed 50 per cent of disability. As he found himself awkward about his work, by reason of his injury, it seemed to him that he would never be able to work properly again. Then it was that thoughts of suicide came into his mind. The second case concerned a telephone operator, aged 29, who had suffered a compound fracture of the right leg and a fracture of the patella. Following the accident, mental disturbances were likewise observed. The patient committed suicide. It was found that he had suffered before the accident from psychopathic disturbances but that the accident had aggravated his mental condition. That was likewise the case in the third example cited, that of a boatman, aged 38, whose right thumb was about to be amputated. He fled and committed suicide. The fourth case belongs to the same category as the first. It concerned a lighterman who had suffered a fracture of the cuneiform bone without luxation. He was allowed 50 per cent disability but it seemed to him, likewise, that he would never be able to work properly, so he ended his life. The fifth case was entirely different. An engineer had suffered an injury of the right arm. Five weeks later, he committed suicide. It was found that he had already been an inmate of a psychopathic institution and likewise that he was wanted by the Belgian police for moral delinquency. In this case, it is certain that his injury alone did not lead to his suicide.

Report of Radiotherapeutic Institute

In the annual report for 1930, issued by the Radiotherapeutic Institute of Rotterdam, the medical director gives a detailed account of the method of treatment in cancer of the uterus. From his study on the combined treatment with surgery and radiology, he reached the following conclusions: 1. The value of prophylactic irradiation in its present form is as yet uncertain. Consequently, one has not the right to make an absolute demand for the application of this method. That can be done only when an increasing number of patients treated in that manner shall show that this treatment improves the state of health. 2. Preliminary surgical treatment, by means of electrocoagulation, encounters the same objections. In the case of conditions fairly well advanced, it may aid the radiologic treatment. When the development of the tumor is still in the beginning stage, it can be replaced by the application of radium needles. 3. The radical operation, following the preliminary ray treatment, is advisable in all cases in which the period of the first onset has passed; also in the grave cases when, of course, the ray treatment has improved the condition temporarily and has thus prepared the way for the operation. The radical operation is to be recommended likewise when the preliminary treatment with rays appears to have affected the clinical cure. The cure may, however, be only apparent; for the cancer cells that have escaped the fatal action of the rays may at any moment provoke a recurrence. At the institute, 239 patients affected with cancerous tumors have been treated, and in 121 a satisfactory result was achieved, while in 69 no results were obtained.

THE UKRAINE

(From Our Regular Correspondent)

Odessa, Jan. 24, 1932.

The Institute for First Aid

Before the revolution, the Odessa station of first aid existed, as the majority of such establishments, by means of philanthropic donations. Even before the revolution a number of stations ceased working because of the want of means; the Moscow station did not work from 1911 till 1917, and the Kiev station several times ceased its work only to resume it again. Under the soviet régime this situation has changed. The first aid stations, which were placed under the supervision of the commissariat of public health, received a solid material basis. The number of stations increased. At present there are sixteen stations in the Ukraine, three times more than existed before the revolution in all Russia. Every town with a population over 50,000 has its own station of first medical help. The Odessa station from the day of its foundation, April 20, 1903, has been open continuously. Special means

Suicides in Odessa

Period	Years	Workers, Per Cent	Employees, Per Cent	Others, Per Cent
Before the imperialist war....	1903-1914	40.6	39.8	19.6
During the imperialist war...	1914-1917	34.3	43.9	21.8
Revolution period	1917-1918	25.1	51.6	23.3
Civil war, famine, intervention	1918-1922	11.0	55.0	34.0
Reconstructive period	1922-1931	23.6	15.4	61.0

for transportation and a medical and technical staff guarantee that aid will be administered promptly. Not more than half a minute elapses from the moment of the telephone call for help to the moment of the car's departure. In four minutes, on the average, the motor-car arrives at the place of the accident. Every motor-car is equipped with three boxes, one with surgical instruments for urgent aid and with dressing material, another with antidotes and instruments for lavage of the stomach, and a third with an apparatus for the injection of saline solution. In an average time of four minutes the patient receives at the place of the accident a transfusion of sterile saline solution. In every car there is oxygen and carbon dioxide, for purposes of resuscitation.

The work of the station was demonstrated in 1911 at the hygienic exhibition in Dresden, where the station received a diploma and the Esmarch medal. During its existence the Odessa first aid station has registered about 167,259 visits. It has become popular. From its material the station organized a scientific museum, the aim of which is to popularize and develop first aid. The material is divided into twelve departments. Great interest is shown in the department of trauma-

tism, especially suicides. The material on the question of suicides is the largest collection in Europe. It contains about 10,000 detailed records of suicides in which questions of age, social conditions, education, place, means of suicide and motives are mentioned. These cards cover twenty-eight years. It is interesting to note the influence of social conditions on suicide. The number of suicides is diminishing every year, particularly among the working class; the number in the group of "others," on the contrary, is increasing.

A thorough investigation in the field of administering first aid is going on. The museum has worked out lists of poisons and antidotes and toxic gases. These lists are now used in all the dispensaries and stations of first medical aid in the Ukraine.

Death of Professor Golovin

The death of Prof. Serge Selivanovitch Golovin, a prominent Russian ophthalmologist, was reported, April 28, 1931, from coronary thrombosis. He was born in 1866 in Bolchov and graduated in 1889 from the Medical Faculty of the Moscow University. He was invited to join the clinic of eye diseases of the Moscow University as an assistant. In 1895 he was made lecturer in ophthalmology. In 1903 he was elected professor of ophthalmology at the Odessa University. He remained at Odessa eight years. In 1911 he became professor of ophthalmology at the Moscow University. Professor Golovin made many contributions to ophthalmology. He offered a cytotoxic hypothesis on the etiology of sympathetic ophthalmia and cataract, and a hypothesis of the vascular origin of glaucoma. He introduced an osteoplastic operation for empyema of the frontal sinus which is known the world over; also the ligation of the upper orbital vein as treatment of pulsating exophthalmos. He invented the roentgenographic method for detecting foreign bodies in the eye, and retrobulbar diaphanoscopy.

Professor Golovin wrote twelve monographs, all of which brought new data in the field of ophthalmology. He published "Clinical Ophthalmology" in 1924 and "Ophthalmotonometrical Examinations," the classic on statistics of blindness in Russia, in 1910. He was one of the founders of the Moscow Ophthalmologic Society, an honorary member of many Russian ophthalmologic societies, and a member of several international congresses and foreign societies. He founded a Russian ophthalmologic school and had many brilliant pupils. He wrote over 100 scientific works, many of which are printed in foreign languages. For Prof. S. S. Golovin's forty year jubilee of his medicoscientific work, the *Russian Ophthalmologic Journal* issued a special number. His name was known through all the world, particularly in the United States.

Marriages

ROBERT CHURCH KNOTT, Sioux City, Iowa, to Miss Catherine Peck of Sioux Falls, S. D., January 18.

GEORGE A. HENNIES, Chester, S. C., to Mrs. Elizabeth Bennett Atkinson of Holly Hill, February 10.

CHARLES ALLEN PERERA, New York, to Miss Ruth Hoopes Brinton of Haddonfield, N. J., February 20.

WALTER D. HIGGINS, Peabody, Mass., to Miss Alma Edith Knowles of North Andover, Nov. 28, 1931.

BENJAMIN G. BROGHAMMER to Miss Lucille Murphy, both of Cedar Rapids, Iowa, January 14.

BENJAMIN LYNN BRIDGES, Ellaville, Ga., to Mrs. Ruth Scott Williams in Atlanta, February 9.

ERNEST M. TAPP, JR., to Miss Marjory McIntosh, both of Chillicothe, Ohio, Nov. 26, 1931.

SIDNEY S. SMITH, JR., to Miss Melissa Browne, both of Raleigh, N. C., Feb. 6.

ESTHER COHEN to Mr. Nathan M. Smolens, both of Philadelphia, Dec. 4, 1931.

Deaths

Willy Meyer ⊕ New York; University of Bonn, Germany, 1880; emeritus professor of surgery, New York Post-Graduate Medical School and Hospital; professor of clinical surgery, Woman's Medical College, New York, 1886-1892; member of the American Surgical Association, American Association for Thoracic Surgery and the American Urological Association; fellow of the American College of Surgeons; consulting surgeon to the Lenox Hill, New York Post-Graduate, New York Skin and Cancer and Montefiore hospitals, Hospital for Joint Diseases, New York Infirmary for Women and Children and the Glens Falls (N. Y.) Hospital; author of a recently published book on cancer; aged 73; died, February 25, of heart disease, immediately following a meeting of the New York Surgical Society, which he was attending.

George Clymer Stout ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1891; secretary of the Section on Laryngology and Otology, American Medical Association, 1900-1901, and member of the House of Delegates in 1902; member of the American Laryngological Association, and fellow of the American College of Surgeons; veteran of the Spanish-American War; consulting laryngologist and aurist to the Presbyterian Hospital; aged 69; died, January 27, in Ventnor, N. J., of heart disease.

Austin O'Malley, Philadelphia; Georgetown University School of Medicine, Washington, D. C., 1893; instructor of bacteriology at his alma mater, 1893-1895; professor of English literature, Notre Dame University, 1895-1903; author of "Thoughts of a Recluse," "Essays in Pastoral Medicine," and other books; aged 73; died, February 25, in St. Agnes' Hospital, of uremia and arteriosclerosis.

James Monroe Watkins, Troy, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; member of the Medical Association of the State of Alabama; member of the Alabama Board of Censors; past president of the Pike County Medical Society; physician-in-chief of the Alabama Baptist Orphanage; aged 61; died, January 25, in a hospital at Montgomery, of coronary occlusion.

Jeremiah Black Clayton ⊕ Colonel, U. S. Army, retired, Corning, Calif.; University of Maryland School of Medicine, Baltimore, 1893; entered the army as an assistant surgeon in 1897 and was promoted through the various grades to that of colonel in 1917; was retired in 1930 for disability in line of duty; aged 59; died, February 2, of chronic endocarditis and bronchopneumonia.

Abraham Albert Levine, Mount Vernon, N. Y.; Fordham University School of Medicine, New York, 1917; member of the Medical Society of the State of New York; served during the World War; on the staff of the Bikur Cholin Convalescent Home for Greater New York; aged 42; died, January 30, of acute dilatation of the heart and myocarditis.

Alfred F. White, Flovilla, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1892; member of the Medical Association of Georgia, and the state board of medical examiners; past president of the Butts County Medical Society; aged 76; died, Dec. 24, 1931, in a sanatorium at Atlanta, of suppurative pancreatitis.

Mallie Adkin Clark ⊕ Macon, Ga.; Bellevue Hospital Medical College, New York, 1890; fellow of the American College of Physicians; past president of the Medical Association of Georgia; formerly trustee and member of the faculty of Mercer University; aged 65; died, February 6, of myocarditis and endocarditis.

Frederick Andrew Jackson, Salida, Colo.; Denver College of Medicine, 1888; member of the Colorado State Medical Society; formerly on the staff of the Denver and Rio Grande Western Railroad Hospital; aged 67; died, January 22, in St. Joseph's Hospital, Denver, of cardiovascular renal disease.

Edward Michael Burns, Poughkeepsie, N. Y.; College of Physicians and Surgeons in the City of New York, 1894; member of the Medical Society of the State of New York; aged 60; on the staff of St. Francis Hospital, where he died, January 31, of carcinoma of the stomach.

Robert Earl Higdon, Brookhaven, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1896; member of the Mississippi State Medical Association; aged 59; on the staff of the King's Daughters' Hospital, where he died, January 24, of acute nephritis.

⊕ Indicates "Fellow" of the American Medical Association.

Harold Main Vango, Edmonton, Alta., Canada; McGill University Faculty of Medicine, Montreal, Que., 1923; associate professor of medical jurisprudence and assistant professor of pathology, University of Alberta Faculty of Medicine; aged 36; died, Dec. 29, 1931.

Frederick Herbert Massecar ✠ New York; University of the City of New York Medical Department, 1884; clinical visiting physician on the tuberculosis service, Harlem Hospital; aged 70; died, February 2, at Waterford, Ont., Canada, of myocarditis.

Warren Gray Sawyer, Madison, Maine; Medical School of Maine, Portland, 1884; member of the Maine Medical Association; formerly member of the state legislature and chairman of the board of health of Madison; aged 76; died, Dec. 16, 1931.

Frederick Nicholas Henry, Detroit; Medical Faculty of Trinity University, Toronto, Ont., Canada, 1892; Victoria University Medical Department, Coburg, Ont., 1892; aged 64; died, January 15, in the Grace Hospital, of diabetic gangrene.

Joseph John Scholtes, Sinking Spring, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1920; on the staff of the Homeopathic Medical and Surgical Hospital, Reading; aged 33; died, January 24, of pneumonia.

Gottlob Hartung, Cullman, Ala. (licensed, Alabama, 1892); member of the Medical Association of the State of Alabama; past president of the Cullman County Medical Society; aged 88; died, Dec. 17, 1931, of cerebral hemorrhage.

Roelf Barkema, Patton, Calif.; University of Groningen Faculty of Medicine, Groningen, Netherlands, 1923; member of the California Medical Association; aged 37; died, January 2, of peritonsillar abscesses and septicemia.

Michael Calvin Dinger ✠ Morrisdale, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1905; aged 55; died, January 10, at the Clearfield (Pa.) Hospital, of peritonitis, following an operation for appendicitis.

James Wesley Tucker, Lindsay, Okla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1892; member of the Oklahoma State Medical Association; aged 71; died, January 21, of chronic myocarditis.

John Vance Greene, San Diego, Calif.; Kansas City Medical College, 1897; member of the California Medical Association; aged 59; died, Dec. 24, 1931, of diffuse arteriosclerosis and coronary occlusion.

Edwin Blair Hanna ✠ York, Neb.; Chicago Homeopathic Medical College, 1900; member of the city council; on the staff of the Lutheran Hospital; aged 63; died suddenly, January 5, of cerebral hemorrhage.

Malvin V. Replogle, Bryan, Ohio; Starling Medical College, Columbus, 1894; member of the Ohio State Medical Association; for ten years health officer of Williams County; aged 61; died, Dec. 31, 1931.

Samuel R. Harbin, Canton, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1898; member of the Medical Association of Georgia; aged 59; died, January 26, of carcinoma of the bladder.

Jeremiah P. Worsham, Barry, Texas; Southwestern University Medical College, Dallas, 1904; member of the State Medical Association of Texas; aged 60; died, Nov. 13, 1931, in a hospital at Dallas.

Elna Cicillia Bjork, San Diego, Calif.; Grand Rapids Medical College, 1900; aged 73; died, Nov. 13, 1931, in the San Diego County Hospital, of lobar pneumonia and cardiovascular renal disease.

Henri Lambert, Brunswick, Maine; School of Medicine and Surgery of Montreal, Que., Canada, 1906; member of the Maine Medical Association; aged 50; died, Dec. 30, 1931, of carcinoma of the liver.

John G. Chambers, Sr., Birmingham, Ala.; University of Nashville (Tenn.) Medical Department, 1898; aged 58; died, February 6, in the Norwood Hospital, of arteriosclerosis and subacute cholecystitis.

Henry Hall James, Jr., Detroit; Detroit Homeopathic College, 1910; member of the Michigan State Medical Society; aged 51; was found dead in his garage, January 24, of carbon monoxide poisoning.

Edward Fowler Hurd, New York; College of Physicians and Surgeons in the City of New York, 1883; member of the Medical Society of the State of New York; aged 70; died, Dec. 26, 1931.

James Alberdean Young, Britton, Okla.; College of Physicians and Surgeons, Keokuk, Iowa, 1894; aged 70; died, Dec. 18, 1931, at the home of his daughter in Oklahoma City, of heart disease.

John D. Lindores ✠ Stevens Point, Wis.; American Eclectic Medical College, Cincinnati, 1887; on the staff of St. Michael's Hospital; aged 72; died January 27, of pernicious anemia.

Barton Lincoln Baker, Los Angeles; Hahnemann Medical College and Hospital of Philadelphia, 1887; aged 71; died, Dec. 10, 1931, of carcinoma of the stomach and arteriosclerosis.

John Walter Montgomery, Foxworth, Miss.; Memphis (Tenn.) Hospital Medical College, 1907; aged 50; died, January 9, in the Columbia (Miss.) Hospital, of lobar pneumonia.

Henry C. Miller, Greentown, Ind.; Kentucky School of Medicine, Louisville, 1883; member of the Indiana State Medical Association; aged 82; died, January 14, of arteriosclerosis.

William Campbell Allen, Morning Sun, Iowa; State University of Iowa College of Medicine, Iowa City, 1881; aged 75; died, January 4, in Long Beach, Calif., of angina pectoris.

Frank R. Morath, Columbus, Ohio; University of Wooster Medical Department, Cleveland, 1878; aged 74; died, January 16, in the Masonic Home, Springfield, of arteriosclerosis.

Horatio Page Gatchell, Jr., Los Angeles; Hahnemann Medical College and Hospital, Chicago, 1875; aged 84; died, Nov. 29, 1931, of cerebral hemorrhage and influenza.

Adolpho Alfonso Luria, Chicago; College of Physicians and Surgeons of Chicago, 1895; aged 64; died, February 5, of chronic nephritis, myocarditis and arteriosclerosis.

Loring Sawyer Lombard, South Portland, Maine; Medical School of Maine, Portland, 1893; member of the Maine Medical Association; aged 61; died, January 10.

Henry North Sloan, Ninety Six, S. C.; University of South Carolina Medical Department, Columbia, 1869; Civil War veteran; aged 84; died, Dec. 25, 1931.

John Henry Gaines, Newport, Vt.; University of Vermont College of Medicine, Burlington, 1884; aged 76; died, January 10, in Bradenton, Fla., of uremia.

Hugh Harrison Conroy, Pasadena, Calif.; Louisville (Ky.) Medical College, 1891; aged 66; died, Dec. 14, 1931, of tabes dorsalis and chronic interstitial nephritis.

Archibald Lawson, Greensboro, Ala.; University of the City of New York Medical Department, 1876; bank president; aged 79; died, January 11, of smallpox.

Daniel Harris Squires, Ashville, Ohio; Columbus Medical College, 1880; also a druggist; aged 81; died, January 4, in Sarasota, Fla., of dilatation of the heart.

Bernard Aloysius McDermott, Omaha; Northwestern University Medical School, Chicago, 1903; aged 52; died, January 13, in St. Catherine's Hospital.

Joseph Edward Rogers, Rocksprings, Texas; College of Physicians and Surgeons, Memphis, Tenn., 1907; aged 62; died, Dec. 16, 1931, of heart disease.

Margaret Vaupel Clark, Long Beach, Calif.; Hahnemann Medical College and Hospital, Chicago, 1893; aged 78; died, January 2, of cerebral hemorrhage.

Greene Warren McConathy, Eads, Tenn.; University of the South Medical Department, Sewanee, 1909; aged 47; died, Dec. 15, 1931, of heart disease.

James Harrison Clark, Pacific Grove, Calif.; Bellevue Hospital Medical College, New York, 1872; aged 90; died, Nov. 11, 1931, of senility.

Earl Harlan, Harrison, Ohio; Medical College of Ohio, Cincinnati, 1898; aged 60; died, Dec. 25, 1931, of a self-inflicted incised wound.

Liston B. Johnson, Georgetown, S. C.; Baltimore Medical College, 1897; aged 57; died, January 2, in Fort Leavenworth, Kan., of pneumonia.

Gordon Hall Rutherford, Chatham, Ont., Canada; University of Toronto Faculty of Medicine, 1927; aged 31; died suddenly, January 4.

John F. Costello, Howard, Kan.; Columbus Medical College, 1880; aged 79; died, January 14, of cardiovascular renal disease and uremia.

Hollis L. Courtney, Tulsa, Okla.; Ensworth Medical College, St. Joseph, Mo., 1907; aged 62; died, Dec. 16, 1931, in a local hospital.

William M. Walker ✠ Boston; Tufts College Medical School, Boston, 1894; aged 66; died, January 29, of lobar pneumonia.

Edwin A. Hecker, New Madison, Ohio; Columbus Medical College, 1878; aged 81; died, January 26, of heart disease.

Henry Illoway ✠ New York; Miami Medical College, Cincinnati, 1869; aged 84; died, January 15, of uremia.

Correspondence

INTRAVENOUS INJECTION OF DEXTROSE SOLUTIONS

To the Editor:—I am writing you on account of my astonishment in reading the editorial concerning the "injection" intravenously of dextrose solution (THE JOURNAL, Dec. 12, 1931). I had thought that that method had long since given place to the continuous infusion at the physiologic rate of delivery.

A rich experience has taught me that the objections which you mentioned in your editorial are entirely obviated by the adoption of this more rational procedure, mention of which was entirely omitted in your editorial.

G. A. HENDON, M.D., Louisville, Ky.

To the Editor:—May I suggest that your editorial comments on intravenous injections of dextrose as a therapeutic procedure in the Dec. 12, 1931, issue of THE JOURNAL are perhaps more critical than the facts of the investigations referred to by you may warrant.

So general is its use that great quantities of dextrose solution in various degrees of concentration are being given in hospitals and in homes daily without any unfavorable reactions. In many clinics, reactions of any such type are practically unknown.

Nevertheless the tendency of human nature seems to be to place the blame for any reaction that does occur on the fact of its being a dextrose injection, until the term "glucose reaction" has actually come to be a poor alibi in many instances for failure to observe the fundamental rules of the procedure.

A review of the studies on which your editorial is based shows that Stuter and Lang (*Arch. f. exper. Path. u. Pharmakol.* **154**:50, 1930.) found their most significant changes in the chemical examination of the blood following dextrose injections, as you pointed out, in patients with cardiac decompensation, a condition to which certain such changes are common from the disease itself. In the fatal case reported by Askey and Hall (*California & West. Med.* **32**:394 [June] 1930) appears the significant statement that "the resident physician was ordered to give the patient, slowly, 1,000 cubic centimeters of 10 per cent glucose solution intravenously," so that no specific information as to the velocity of the injection is available. One may safely assume that the average intern's interpretation of "slowly" will not reach two hours, which by actual computation is the minimum time to be consumed for such an injection (1,000 cc. of 10 per cent solution) to an average adult at 0.8 Gm. per kilogram of body weight per hour.

This may have been one of the velocity reactions described by Hirshfeld, Hyman and Wanger (*Arch. Int. Med.* **47**:259 [Feb.] 1931), or may have been from the amount of the dextrose being excessive (Titus and Lightbody: Therapeutic Dose of Dextrose, *Am. J. Obst. & Gyn.* **18**:208 [Aug.] 1929), causing an overstimulation of the pancreas and endogenous hyperinsulinism (Thalhimer, Raine, Perry and Buttles: Effect of Injections of Dextrose and of Insulin and Dextrose on Blood Sugar, THE JOURNAL, Aug. 7, 1926, p. 391). In this connection it is significant that this reaction occurred as those from hyperinsulinism do, not during but after the injection. It is of course possible that thrombosis and embolism resulted from the injection as the authors suggest, but this is fortunately rare in the total of all injections being given. The three cases of Ylanan (*J. Philippine Islands M. A.* **10**:440 [Oct.] 1930), which you cite as further examples of death from dextrose injections, are obviously deaths from (1) dextrose in "old, standing, distilled water, which most likely was contaminated, the solution boiled and golden yellow in color, not clear, and caramelized"; (2) from dextrose in "rain water as the solvent . . . boiled . . . and caramelized"; (3) from a dextrose solution "prepared by a local pharmacist, . . . made from impure glucose dissolved in distilled water several months old, . . . boiled, turbid and yellow." These were not "glucose reactions" but "carelessness reactions."

Obviously, if a therapeutic measure which has proved so generally useful in so many conditions is to be condemned because bad results follow faulty technic, then we should discard nitrous oxide anesthesia, for example, because of an occasional bad result from a technical error, or never give a hypodermic injection because a dirty one causes an abscess.

If dextrose solutions are properly prepared and properly given, reactions are almost entirely avoidable (Titus and Dodds: Causes and Preventions of Reactions from Glucose Injections, *Am. J. Obst. & Gynec.* **14**:181 [Aug.] 1927). They should not be made or given by any one who does not know this.

A pure dextrose, in freshly distilled water, properly sterilized, given no faster than at the physiologic rate, heated instead of cooling, and in not more than the therapeutic dose, will seldom give anything but beneficial results when properly indicated.

Bizarre suggestions such as that which you cite of the intravenous injection of raw orange juice are too absurd to be discussed, and the injections of sucrose which are referred to likewise have little in common with dextrose.

Please do not misconstrue what I have written as indicating disapproval of your timely editorial. Its note of warning is sorely needed as a brake on our enthusiasm. I felt merely that the discreditable causes for some of the more outstanding of the bad results had not been sufficiently emphasized, whereas more stress than necessary seemed to have been placed on the more uncommon causes of reactions following dextrose injections.

J. STUART LAWRANCE, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BENIGN HYPERTENSION

To the Editor:—What is the significance of an increase in the diastolic pressure and an increase in the systolic pressure with a negative urinary examination and negative chemical examination of the blood in a patient, aged 50. The blood pressure is 180 systolic and 125 diastolic. This is a rather broad question, of course, but I would appreciate your discussion of it. Please omit name.

M.D., North Carolina.

ANSWER.—A rise in blood pressure of the type described would probably fall in the group of primary or benign hypertension. If, as is usual, in this condition it has existed over a period of several years at least, there are some secondary changes usually present. The heart will show moderate left ventricular enlargement, and the palpable arteries a thickened wall with some tortuosity, but without the beading more characteristic of the senile type of arteriosclerosis. Roentgen examination may show patchy calcification of the vessels. There are usually definite arteriolar changes as well. These may be shown clinically by examination of the fundi, in which the arteries are narrowed, show the so-called copper wire reflex, and definitely indent the veins where they cross or come in close contact. The same arteriolar changes occur in the kidney and, if extensive, may involve some of the glomeruli in hyaline degeneration and sclerosis. Slight albuminuria may occur but usually does not. The available tests of kidney function are not sufficiently sensitive to measure the amount of glomerular damage unless the disease process runs a course of many years and the arteriolar changes are of extreme grade. This arteriolosclerosis may be demonstrated by biopsy elsewhere in the body.

The etiology is obscure. The origin of the condition is probably functional and the organic vascular changes are a secondary response to the increase in pressure. This has not been proved but seems the most likely hypothesis.

The course is long, and with a pressure no higher than that mentioned at the age of 50, if the vascular system is competent, the outlook is good. The complications that arise are, first, cardiac failure, and, second, cerebral hemorrhage or thrombosis. Disease of the coronary arteries may enter the picture. If vascular failure does not occur and the patient lives sufficiently long, renal impairment may become evident. The pathologic terms applied then to this condition are primary contracted kidney, arteriosclerotic kidney or benign nephrosclerosis.

Blood pressure readings in such a patient taken frequently show a well marked fluctuation with or without treatment. They respond, by rising and falling, to evironmental changes in much the same way as a normal individual will. The systolic-diastolic levels usually retain the same approximate relationship. A sudden marked drop, especially with a decrease in pulse pressure, usually is indicative of myocardial impairment or coronary disease.

If the functional element is still active there may be an appreciable fall as the result of treatment, especially relaxation, rest, a normal diet, weight reduction if needed, and correction of faulty habits. Drug therapy is more or less uncertain and unsatisfactory. The best results are obtained by corrective measure, but no permanent marked fall in pressure is to be expected if anatomic changes are well advanced.

EPICONDYLITIS, OR OSGOOD'S "TENNIS ELBOW"

To the Editor:—I have a patient, a painter by trade, who gives a history of falling and hurting his right shoulder and arm. He complains of a severe pain in the right elbow, mostly in the region of the external epicondyle. He has much pain at night. He cannot use his hand for grasping anything, even an empty cup, so intense is the pain. On examination I found the elbow joint free for motion and painless while moving. Roentgenograms are negative. There is much tenderness in the region of the external epicondyle. The pain seems to be a real one; i. e., it seems to me that the patient really has it. It has been suggested to me that this condition resembles a typical case of Osgood's "tennis elbow" or external epicondylitis. May I ask you to inform me what are the typical signs of epicondylitis? Does my case seem to you to be one of that kind? What can you suggest for therapy? Where can I find a description of this condition? The circumference of the right arm in the region of the elbow is from 0.5 to 0.75 cm. greater than that of the left arm.

JUDAH MINKIN, M.D., Bronx, N. Y.

ANSWER.—The description would place this case immediately in the group considered under the term "tennis elbow," or external humeral epicondylitis. The condition called tennis elbow is of fair frequency as a cause of disability of the elbow. This condition has been variously ascribed to muscular, bursal, periosteal, ligamentous and synovial disturbances. The radiohumeral bursa lies immediately distal to the external epicondyle deep to the common origin of the extensor group and between this and the radiohumeral joint.

Trethowan believes that tennis elbow is always a traumatic synovitis of the radiohumeral joint. He does not believe that sepsis is a factor, as his eight patients were all cured by simple removal of the fringes. Ogilvie believes that the condition occurs not only in tennis players but also in fly-fishers, golfers, saber fencers and workers with a hammer. He describes a definitely localized tender spot on the outer side of the joint in the region of the external epicondyle. He found that clenching the fist is painful. He believes that the condition is due to a tearing of muscle fibers at their origin from the bone and in some cases to separation of the periosteum.

Mills believes that the condition is similar to a displaced cartilage in the knee caused by a subluxation of the radius or displacement of the orbicular ligament.

Carter in the *Journal of Bone and Joint Surgery* (**7**:553 [July] 1925) describes epicondylitis as a condition characterized by pain originating in and about the lateral humeral condyle, radiating down the forearm and hand, giving rise to disability of varying degrees. The most common pathologic changes are localized periostitis or bursitis.

Golf elbow results from strain of the flexor carpi ulnaris due to forcible abduction of the wrist causing tension on this muscle.

The chief symptoms of tennis elbow are tenderness in the region of the external epicondyle of the humerus and weakness of the muscles of the forearm. There is usually an area of tenderness over the external epicondyle of the humerus or over the head of the radius. Movements of the elbow and movements of the forearm, especially pronation and supination, cause pain referred to the external epicondyle.

The Mills test is carried out as follows: If the wrist and fingers are fully flexed and the forearm is pronated, complete extension of the elbow is restricted and painful.

This condition is referred to in the American literature as Osgood's radiohumeral bursitis or epicondylitis. Osgood's article is one of the best descriptions of this condition. It appeared in the *Archives of Surgery* (**4**:420 [March] 1922). Osgood had the pathologic condition himself and while he was being operated on under local anesthesia he analyzed the pathologic anatomy and wrote a description of it. He described the bursa as the radiohumeral bursa which appears when a split is made in the conjoint tendon of the extensor muscles over the radiohumeral joint. The pathologic changes are thought to be due to an inflammatory reaction in the connective tissue plane located beneath the conjoint tendon of the extensor muscles between this tendon and the tip of the epicondyle, the origin of the supinator radii brevis and the radiohumeral joint.

Various methods of treatment have been advised, including the hot cautery needle, injection of camphor and phenol, immobilization in plaster, immobilization in splints, and operation which consists of removal of the bursa. Strapping the hand, wrist and elbow so that the forearm is midway between pronation and supination is usually helpful. Alcohol injections have been advised. An adhesive plaster dressing has been advised. A similar pad for compression over the bursa has been advised. He places the arm in the attitude previously described, forces it into complete extension, making firm pressure with the thumb over the sensitive spot. In some cases there is an audible click when the resistance gives way.

An excellent description of this condition will be found in the following textbooks:

Jones, Robert; and Lovett, R. W.: Orthopedic Surgery, ed. 2, New York, William Wood & Co., 1929. On page 64 the authors quote from the article by Robert B. Osgood.
Campbell, W. C.: Textbook on Orthopedic Surgery, Philadelphia, W. B. Saunders Company, 1930, p. 534.
Whitman, Royal: Treatise on Orthopedic Surgery, Philadelphia, Lea & Febiger.

The patient referred to in the query should have repeated roentgenograms made to see whether any other pathologic condition is demonstrable.

CLIMATE FOR PATIENT WITH HYPERTENSION AND BRONCHITIS

To the Editor:—I am writing you for information pertaining to the choice of surroundings for a patient of mine. She is suffering with hypertension (220/120), is 65 years of age, and in addition has a chronic bronchitis of long standing. What effects would marked changes of altitude have on this patient and which is the more desirable: Would the salty air of an ocean beach have a deleterious effect? Would she be comfortable in a climate such as exists at Hollywood, Calif.? How should such a patient be treated and what ought one recommend in the way of surroundings?

FLORIAN J. BRYLSKI, M.D., Buffalo.

ANSWER.—Marked changes of altitude are not desirable in a patient of this type, and in general an altitude of sea level or only slightly above would be best. If changes of altitude are unavoidable, during the time of staying in an increased altitude the patient's activities should be markedly restricted until she is acclimatized. Because of the long standing chronic bronchitis, moisture and dampness of an ocean beach might have some deleterious effects, and in general she would probably be more comfortable in a dry, warm, relatively dust and moisture free climate, such as Arizona, New Mexico, and the desert regions of California. The treatment of such a patient should be directed toward the hypertension and bronchitis, the former being treated by the usual dietary and medicinal measures, including a protein poor, salt free diet; the cautious administration of bromides; phenobarbital and small amounts of sodium thiocyanate; the latter, by sedatives for coughing, and various expectorant mixtures.

PHOSPHATURIA

To the Editor:—I have a patient with a resistant phosphaturia with alkaline urine, to whom I have given diluted nitric acid, acid sodium phosphate and ammonium chloride on different occasions. Would you kindly suggest something that will make the urine acid, as this treatment has failed. Kindly omit name.

M.D., New York.

ANSWER.—In the treatment of phosphaturia it is important to remember that frequently the condition is a result of nervous instability. Treatment then must be directed at the patient's nervous system, for which purpose bromides may well be used. Other measures usually employed in treating neurotic individuals are valuable, such as sufficient rest, hydrotherapy and relief from worries of any sort. If, as so frequently happens in cases of phosphaturia, the patient is in a condition of combined physical and nervous fatigue, proper regulation of life is necessary in order to avoid the strain that produces the fatigue. Not infrequently the mere knowledge of the presence of phosphaturia and the fright incident to seeing a cloudy urine produces a vicious circle. When this occurs, the wise physician will minimize the importance of the phosphaturia rather than pay too much attention to its therapy.

In addition, an acid forming diet low in calcium is advisable. Such calcium-poor foods as meat, bread and the cereal grains should be eaten liberally, and other foods which are rich in calcium, such as milk and green vegetables, should be avoided or at least decreased in quantity. Almost any kind of inorganic or organic acid could be used. For further information regarding the acid forming foods and calcium value of diets, any good textbook on nutrition and diet may be consulted.

TUBERCULOUS INFECTION AND TUBERCULOUS DISEASE

To the Editor:—I should like to have a clear and definite understanding between "tuberculous infection" and "tuberculous disease." Also is tuberculosis usually contracted during childhood, becoming active in early adult life, or is it more likely that it is contracted during early adult life and immediately becomes active? Is it true that childhood infection often establishes immunity and protects during later life? What is known about tuberculous immunity and how can it be proved?

C. V. LITTLE, M.D., Sistersville, W. Va.

ANSWER.—Tuberculous infection is the entrance into the human body of tubercle bacilli. This may occur by inhalation, ingestion or inoculation. Tuberculous disease is the change occurring in body tissue incidental to the growth and development of tubercle bacilli in such tissue. Tuberculous infection is usually contracted during childhood, especially in child life in urban centers, because of the widespread presence of tubercle bacilli in congested areas. Such infection in childhood may or may not result in primary tuberculosis, which in a majority of instances may heal, leaving a residual disease focus. This may subsequently be activated in early adult life, or a new infection may take place in adult life which may cause disease at that time, without any previous childhood infection. Childhood infection frequently establishes sensitization to tubercle, which is of some value in the fixation of a tuberculous process later in life. It, however, does not offer more than a possible relative immunity. Tuberculosis immunity is only relative. Skin tested with tuberculin has in many instances indicated a marked sensitization by a severe reaction which occurred when such tests were made. This reaction becomes markedly lessened or may disappear temporarily, in the presence of an acute exanthematous disease, and may be reestablished shortly after the exanthematous eruption has disappeared. This has been taken as an indication of temporary destruction of immunity.

THE IMPORTANCE OF DECIDUOUS TEETH

To the Editor:—I have two references from Queries and Minor Notes on the question of extraction of deciduous teeth which contradict each other. A similar problem has come up in my own practice and I should appreciate your advice as to which is correct. A physician from California asked about a child, aged 13 months, who had lost three upper incisor teeth in an accident. The reply was: "The loss of deciduous teeth is not likely to have any influence on the development of the jaw. The development and eruption of the permanent teeth are the factors that determine growth of the jaw. The permanent teeth will probably erupt in proper position and the only disagreeable phase will be the absence of teeth until the child is about 6 years old." Dr. Brakebill asked about his 19 months' old daughter who broke one of her upper incisor teeth. The reply in part was: "One should plan as best one can to meet developmental conditions that will arise during the next six or eight years. The space occupied by the broken tooth should be maintained in order that there will be room for the permanent tooth when it erupts. If this is not done, the adjacent teeth approximate each other and proper growth of the maxilla is retarded." Some details are then given for maintaining the space left by the missing tooth.

M. BERNARD BRAHDY, M.D., Mount Vernon, N. Y.

ANSWER.—Attention is called to the conditions of growth of the jaws in the incisor region. At about the third year, the deciduous incisor teeth, upper and lower, begin to move apart and continue to do so until they are lost. During this period, the permanent upper incisors are moving downward (the lowers upward) and they appear to direct the growth of the bone in this region. The permanent central incisors are usually formed in the bone with their edges to the front; they gradually rotate as they approach eruption, and thus cause the bone to grow. This is a part of the process of widening the dental arch. It is not necessary, therefore, that space retainers be used for deciduous incisor teeth that are lost by accident or otherwise before the time when they would be normally shed. If one is lost, the space will gradually become wider.

On either side of the jaw, where the deciduous molar teeth are situated, the conditions are far different. If the deciduous first molar is lost, the deciduous second molar may move forward, reducing the space. If the deciduous second molar is lost before the first permanent molar erupts, the permanent molar will likely erupt too far forward. It is important, therefore, to use space retainers when deciduous molars are lost too early.

FLATFOOT

To the Editor:—I have a patient who has an acute flatfoot of the second degree. He has been wearing arch supports for five months. How long should he continue to wear them before he tries to go without them? Please omit name and address.

M.D., Tennessee.

ANSWER.—The patient should get away from metal plates as soon as possible, and should substitute any one or combination or all of the following:

1. Adhesive strapping of the foot and ankle.
2. High lace shoes with rigid shank, straight last and round toe.
3. Modified heels and sole of the shoes (the most common being three-eighths inch rise on the inner border of the heel and one-eighth inch rise on the outer border of the sole).
4. Resilient support to be inserted in the shoe for the longitudinal arch.
5. Special longitudinal arch exercises.
6. Massage of the feet twice daily.
7. Contrast foot sprays.
8. Reduction in weight, if there is indication for it.

CONSUMPTION OF RIVER WATER AND INCIDENCE OF DISEASES

To the Editor:—The water supply of this city is taken from the Missouri River about 20 miles below the discharge of the sewage of a city of some 80,000. The water is extremely turbid and is purified in settling tanks with the help of rather ill regulated additions of alum and lime. No filter is used, and the tanks where the impurities are supposed to settle are not covered, so that when a strong wind blows over the hill where the tanks are situated the settling is even less thorough than under more favorable circumstances. After leaving the settling tanks the water gets an ill regulated addition of solution of chlorinated lime, which is supposed to kill all the bacteria. Often the man in charge appears to use an overdose of this disinfectant, so that our drinking water frequently has a decided smell and taste of bleaching powder. Can it be said that the constant use of drinking water that often contains hypochlorites and always a high percentage of chloride and sulphate of calcium is detrimental to the general well being? Is such constant absorption of hypochlorites, etc., either directly or indirectly detrimental to health? Or is there a lowering of the resistance to diseases? Or might it not be said that the energy or vitality used up to counteract the detrimental effect of such water is lacking for other purposes, such as business enterprises or community life? I am considering the possibility of starting a movement with the end of improving the management of the water works. But before doing so I would like to have an authoritative opinion from a recognized organization whether or not my ideas are defensible. Please omit name and city.

A. B., Kansas.

ANSWER.—From the description of the water supply as given, it would appear that the consumers are not getting adequate protection against water-borne diseases. Some indication of the truth of this surmise might be obtained from a study of the incidence of intestinal infections in the city or even from a study of the typhoid incidence and death rate alone. There is no evidence that waters containing chlorides or sulphate of lime are in any way detrimental to health or that they produce any physiologic strain which might predispose to disease. Neither is there any evidence that the constant consumption of water containing hypochlorites of sodium or calcium in amounts generally used for the treatment of public water supplies is detrimental to health, although it may be disagreeable. No statement is made as to the amount of hypochlorite added or the amount of hypochlorite remaining in the water supply when it reaches the consumer, so that a direct and definite answer is difficult to make. Experience in many parts of the country has shown that the best method of preparing a river water for human consumption is by screening or sedimentation followed by the addition of alum or other coagulant together with some alkali if necessary, filtration and final chlorination. The alum treatment followed by filtration takes care of the greater number of bacteria and the chlorination gives the necessary added factor of safety.

SUCTION OF NASAL SINUSES

To the Editor:—What is the best method of suction in the treatment of nasal sinuses? What technic would you advise? Where can I find a description of the procedure in detail? Please omit name.

M.D., New Jersey.

ANSWER.—It is difficult to state which method of suction is best. It is possible to apply satisfactory suction by means of a small rubber hand bulb to which is attached either a glass or an aluminum tip. By compressing the bulb and placing the tip in one nostril and tightly closing the other, having the patient say some word with the sound of k in it, at the same time releasing the pressure on the bulb, adequate suction will be provided. Water suction pumps are also convenient and quite powerful. The pump itself is attached to the faucet and the

tubing with a nasal tip leads from there to the nose. The degree of suction is regulated by the speed of the water passing through the pump. Electric motor suction pumps are also available for use in offices and hospitals. One method is probably as good as another provided care is taken not to use too powerful a suction for fear of causing bleeding or severe pain. It should be remembered from the physics involved that it is impossible by suction alone to evacuate a cavity that has fluid in its depth unless there is some way of getting air into the cavity so that the fluid is displaced by the air. Using this suction with rather frequent interruptions will allow air to enter the sinus and displace the fluid. When the pus escapes from the sinuses into the nose, suction of course can easily remove it. The hand suction is most easily controlled and is therefore perhaps best from that standpoint. The patient himself can apply suction at home if properly instructed. The subject of nasal suction is discussed in most of the textbooks dealing with the nose and throat, such as those by Ballenger and by Phillips.

CAUTERIZATION OF CERVIX

To the Editor:—Will you be so kind as to describe in detail the office procedure of cauterizing the uterine cervix. I have in mind the cauterization of erosions and old lacerations with the Post cautery, and I can find nothing on the subject aside from the mere mention of the procedure. I am particularly anxious to know the details of the anesthesia necessary—the best anesthetic to use and the local application when the procedure is done entirely under local anesthesia.

J. MARINE KERCHEVAL, M.D., Wolcottville, Ind.

ANSWER.—Cauterization of the cervix usually causes only moderate pain unless it is necessary to use the cautery knife high within the cervical canal. In the latter case a local application of 5 per cent procaine hydrochloride, with or without a preliminary hypodermic injection of 0.008 Gm. (one-eighth grain) of morphine sulphate usually suffices. In patients who are unusually sensitive or in whom the lesion to be treated is difficult of access, nitrous oxide-oxygen anesthesia or infiltration local anesthesia with 1 per cent procaine hydrochloride should be resorted to; some employ ethylene in these cases, but ethylene is hazardous in patients on whom a cautery is used. The technic of endocervical cauterization consists in making four or five radial cuts. Beginning as high as necessary, often at the internal os or above, one pulls the glowing knife blade toward the external cervix, cutting into the mucosa during its withdrawal. Three or four similar additional cuts are usually made.

In the treatment of a raw everted cervix or an erosion of the cervix, multiple parallel anteroposterior cuts are usually made at distances of approximately 0.5 cm apart throughout the affected area.

SUDDEN LOSS OF VISION

To the Editor:—A man, aged 45, came to me because of inability to see with his left eye. One week previously he had gone to an ophthalmologist, who told him that he had a hemorrhage in the left eye. On physical examination I found a moderate obesity, and hypertension of 240/100. Examination of the fundi revealed arteriosclerotic blood vessels but no evidence of any other pathologic changes. No albuminuric retinitis, hemorrhage, optic atrophy or visible pathologic changes of the central arteries were present. Urinalysis showed a moderate degree of fixation (1.012, 1.014, 1.012) but was otherwise negative. The chemical composition of the blood was within normal limits. What accounts for the persistent symptoms in the left eye and absence of other symptoms? What would you suggest for treatment? Please omit name.

M.D., New Jersey.

ANSWER.—Before any diagnosis can be made, visual fields, both peripheral and central, should be taken, and from these, in all probability, a clue may be derived. There might be a retrobulbar neuritis; there might be sclerosis of the basilar cerebral vessels with pressure on the optic nerves; there might be a cortical hemorrhage; there might be any one or two of a number of conditions that could cause loss of vision. Treatment cannot be suggested until a diagnosis has been made.

ACROMEGALY AND ANTERIOR PITUITARY EXTRACT

To the Editor:—What is the possibility of inducing acromegaly in patients who are receiving large doses of anterior pituitary substance for the treatment of alopecia, as advocated by Bengtson? Please omit name.

M.D., Michigan.

ANSWER.—While certain investigators have experimentally created acromegaly in animals by massive doses, it is the consensus of specialists in endocrinology that acromegaly is a specific eosinophilic tumor. Overdosage of pituitary by hypodermic or oral usage usually manifests itself by headache or visual disturbance before any detrimental influences are thought to occur.

ECLAMPSIA

To the Editor:—Does a diagnosis of eclampsia imply pathologic changes in the liver? If necropsy does not reveal any pathologic changes in the liver, is one justified in making a diagnosis of eclampsia?

FREDERICK H. VON HOFE, M.D., East Orange, N. J.

ANSWER.—If a patient has all the clinical (convulsions, hypertension, headaches, edema, visual disturbances, vomiting) and laboratory (albuminuria, cylindruria) evidences of eclampsia, a diagnosis of this disease should be made even if a necropsy fails to reveal the so-called pathognomonic changes in the liver. The exceptions to this rule are the cases in which all the clinical signs and symptoms of eclampsia are present but in which at necropsy an unsuspected etiology for these symptoms is found, such as uremia, cerebral apoplexy, sinus thrombosis or other conditions. Many authorities believe that there are distinctly characteristic changes in the liver in most but not in all women who die of eclampsia. Macroscopically the lesions consist of irregularly shaped red and white areas which arise near the smaller portal vessels and are scattered throughout the entire liver. When the liver is cut across, these areas give the organ a mottled appearance. Microscopically the areas are seen to be necrotic and they involve the periphery of the individual lobules and the portal spaces. The necrosis is due to degeneration which results from thrombosis of the smaller portal vessels. Williams was of the opinion that this lesion does not occur in any disease other than eclampsia, but it is not always present in this disease. Many pathologists, notably Pick, deny that the lesions described are limited to the portal areas and maintain that these changes may be found in any part of the liver.

STRAMONIUM IN PARKINSON'S DISEASE

To the Editor:—Inquiry has been made of me concerning the use of stramonium as a treatment for Parkinson syndrome occurring in a case of epidemic encephalitis. I am more or less unfamiliar with the treatment of this type of case by this drug. Will you please give me such information as you may have on the subject and advise me as to the most suitable preparation of stramonium, the dosage, the length of time administered, habit forming propensities and untoward effects, if any.

C. C. ATHERTON, M.D., Union Grove, Wis.

ANSWER.—The preparation most commonly used is tincture of stramonium U. S. P. in doses starting with 1 cc. (15 minims) three times a day, gradually increased by 0.3 cc. (5 minims) to the dose at the end of each week until relief is secured. The relief is temporary only, and the administration must therefore be continued indefinitely. The drug is not habit forming in the sense that there is difficulty in withdrawal. The untoward effects are similar to those of the belladonna alkaloids, particularly dry mouth and disturbance of vision due to dilatation of the pupils and paralysis of accommodation. Discussion of the method of therapy will be found in Cottrell, S. S.: Encephalitic Sequelae and Their Treatment, *American Journal of Psychiatry* **11**:253 (Sept.) 1931.

TREATMENT OF ACNE

To the Editor:—I encounter the usual run of cases of acne in young people that one finds in general practice. I have tried the hygienic measures, the local applications, ultraviolet rays, vaccine (both stock and autogenous), and in fact all the usual methods excepting the x-rays, with little or no success in treatment. The use of gold sodium thiosulphate has been suggested as a possible treatment. If so, how is it used? Are there any suggestions other than those already mentioned that might be tried?

C. F. WATTS, M.D., Williamsburg, Iowa.

ANSWER.—Hygienic measures should be continued. The diet should be restricted, no alcoholic beverages, coffee, tea, cocoa, chocolate or ice cream sodas being permitted. Patients should avoid fried food, hot bread, batter cakes and heavy desserts and should eat little meat and carbohydrates, many vegetables and fruits. They should eat slowly, chew thoroughly, and drink plenty of water. Constipation, if present, should be corrected. These measures, combined with persistent ultraviolet treatment (not exceeding a mild erythema dose) should succeed with most of the superficial cases. For the others, focal infection should be looked for and eradicated if possible. The affected parts should be scrubbed with soap, followed by hot towels for ten minutes, then cold water or an ice rub. Then the skin should be dried and an application of lotio alba fortified with 6 per cent resorcinol should be made. Some of the deep cases will yield only to x-rays. The use of gold sodium thiosulphate is not an approved method of treatment of acne vulgaris. It is in the experimental stage. It is a dangerous drug, causing severe, sometimes fatal, reactions, and its use is not justified in a noninfectious disease that can be cured by less dangerous measures.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Written examinations will be held in nineteen cities of the United States and Canada, March 26. The general, oral and clinical examination will be held in New Orleans, May 10. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh.

ARIZONA: Phoenix, April 5-6. Sec., Dr. B. M. Berger, 12 N. Central Ave., Phoenix.

CALIFORNIA: *Reciprocity.* Los Angeles and San Francisco, March 16. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, April 6-9. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

CONNECTICUT: *Endorsement.* Hartford, March 22. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

IDAHO: Boise, April 5. Comm. of Law Enforcement, Hon. Emmitt Pfost, Boise.

ILLINOIS: Chicago, April 12-14. Supt., Mr. Paul B. Johnson, Springfield.

MINNESOTA: *Basic Science.* Minneapolis, April 5-6. Sec., Dr. J. C. McKinley, 125 Millard Hall, University of Minnesota, Minneapolis. *Regular.* Minneapolis, April 19-21. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., St. Paul.

MONTANA: Helena, April 5. Sec., Dr. S. A. Cooney, Power Block, Helena.

NEW HAMPSHIRE: Concord, March 10-11. Sec., Dr. Charles Duncan, Concord.

NEW MEXICO: Santa Fe, April 11. Sec., Dr. P. G. Cornish, Jr., 221 W. Central Ave., Albuquerque.

RHODE ISLAND: Providence, April 7-8. Dir., Dr. Lester A. Round, 319 State Office Building, Providence.

WEST VIRGINIA: Charleston, March 22. Sec., Dr. W. T. Henshaw, Charleston.

WISCONSIN: *Basic Science.* Madison, March 19. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Reciprocity.* Milwaukee, April 6. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

PRELIMINARY REPORT OF SURVEY OF HOSPITALS FOR NERVOUS AND MENTAL PATIENTS IN THE UNITED STATES*

At the annual session of the American Medical Association held at Detroit in June, 1930, the House of Delegates, on the initiative of the Section on Nervous and Mental Diseases, adopted two resolutions relative to the care of patients suffering from nervous and mental diseases. One directed the Trustees to appoint a special Committee on Mental Hygiene. The other directed the Council on Medical Education and Hospitals to make an "investigation of all hospitals caring for mental patients within the next one or two years," in order to obtain "a more accurate knowledge of the situation," and to point out "the need of further developments."

The language of this second resolution describes a task intentionally limited as to time and scope, and preparatory to a larger work whose exact nature the preliminary task would help to determine. No such limits were imposed on the Trustees' Committee on Mental Hygiene, nor was there stated or implied any relationship between the functions of this committee and those of the Council. Four months later, the Council itself requested the Trustees' committee to "serve as an advisory committee to the Council," and, as a result of this action of the Council, the committee has come to be known as the Advisory Committee.

The five men composing the Advisory Committee are all Fellows of the American Medical Association, all well known psychiatrists, and all active participants in the affairs of organized psychiatry and mental hygiene. By virtue of their positions, they represent unofficially the three groups of federal, state and private mental hospitals, and also the private office practitioners, the clinical psychiatrists, and the medical schools. The Council's work in the mental hospital field has been planned and is being carried out in as close association with this committee as possible. At the same time the essential coordination of this work with the other work of the Council has not been forgotten.

In the gathering of information, in all the Council's work with hospitals during the quarter century of its existence, two major procedures have stood the tests of time and accuracy: the questionnaire and the personal visit. The specific task of this report is to make known the results thus far obtained by the use of these two methods.

THE QUESTIONNAIRES

The work was definitely begun, Jan. 1, 1931. In consultation with the Advisory Committee, a questionnaire was prepared and mailed to the 561 institutions for nervous and mental patients listed in the Register of Hospitals. Of the 561 institutions, 416 have returned these questionnaires with the data asked for. While returns from seventeen states are already complete and those from the entire group are approximately 75 per cent complete, the questionnaires are still coming in and a more complete report will be possible at a later date.

In twenty-two states all the government-owned institutions addressed have returned the questionnaires; in each of twelve other states only one hospital has failed, and in each of an additional nine states only two hospitals have failed. That is, in forty-three of the forty-nine states (including the District of Columbia) all the federal, state, county and city mental hospitals except thirty have already returned the questionnaires, and many of these thirty hospitals will return them later. There are six states remaining to be accounted for. In four of these the returns have been between 75 and 80 per cent complete; in the other two the returns are now between 10 and 20 per cent complete.

In twenty-five states, all the private institutions have returned the questionnaires; in each of eight other states only one hospital has failed, and in each of an additional seven states only two hospitals have failed. That is, in forty states all private institutions have made returns except twenty-two, and we know that some of these will respond later. There remain nine states to be accounted for. In all of these the returns to date are between 50 and 75 per cent complete.

THE PERSONAL VISITS

Of the 561 institutions, personal visits have been made to 353. The conditions observed by the visitors can be reported more satisfactorily later, but a few general statements can be made now.

Of the government-owned group, the Veterans' Administration hospitals are on the whole comparatively new and well equipped, have relatively large medical staffs, and apparently give the individual patient good custodial and therapeutic care. Among county and city institutions, the great majority of those visited were found to be custodial in nature without any aspirations to the rank of hospitals. They are usually managed by laymen who are apparently intelligent and humane, interested in their work and carrying it on in a reasonably acceptable manner. The question whether or not these insane asylums, frankly divorced from considerations of therapy, have a rightful place in a modern mental health program is too complicated to be considered in this brief report.

In state hospitals, which are nearly three times as numerous as all federal, county and city institutions, personal contact with administrative heads revealed that overcrowding was almost universal. In several places it had been carried to a most deplorable extreme. Recreation rooms, living rooms and dining rooms had been made into dormitories. Beds had been placed on porches, in hallways, in attics and in basements. The lack of room was in some instances such as to rule out almost all classification on a basis of diagnosis or therapy, the only workable classification being on the basis of temperament; and without proper classification adequate care is impossible.

In several of these state hospitals there were no hospital units, the word hospital being applicable to them only in the broadest sense of the term. Others had no separate receiving units. Some lacked the equipment for giving patients proper diagnostic or therapeutic care. The personnel in many was admittedly inadequate, attendants being both too few and too incapable, and the medical staff being greatly undermanned. In the presence of such conditions no special knowledge or training was required for their discovery; indeed, if it had been required, many of the superintendents made it unnecessary by themselves calling the visitor's special attention to the conditions; the superintendents desired that such conditions be reported, in the hope that such a report might lead to their improvement.

* Read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 15, 1932.

Private institutions fall easily into two classes: the sanatoriums and the rest homes (sanatoriums being interpreted as places for therapeutic care while rest homes are merely custodial). Nearly all sanatoriums were found clean, orderly, and apparently well conducted. They return a comparatively large percentage of their patients to active civil life, and they apparently merit the respect and support of the medical profession. While many rest homes meet a real need in a satisfactory way, several others have no adequate medical supervision and their value as medical institutions is nebulous.

The language here employed is not intended to convey the impression that the Council's visitors are sitting in judgment over these institutions. No such purpose is associated with this preliminary survey, and the language of this report describes the kind and amount of work done rather than its quality. The use of the data returned by these visitors as a basis for the rating of institutions for mental patients is an idea that has no place whatever in the program now being carried out.

It would be hard to overemphasize the value of the personal medical contacts that these visits to institutions have made possible. While personal visits have for years been included in the Council's work with hospitals both general and special, in no other group of hospitals has the need of such personal contacts been so evident or the immediate results so gratifying. Visits have necessarily been brief, but the danger of inaccuracies in reports is minimized by the use of the questionnaire, on which a superintendent makes his own report in writing, the superintendent's report and the visitor's report being checked against each other.

Little more need be said now regarding this unfinished task. With 353 visits made, there are some 200 more to be made. With 416 questionnaires already returned, 150 more are still to come in. The data thus secured must then be analyzed and interpreted. This study will be most carefully made, utilizing all the resources at our command. A final report will then be made to the House of Delegates.

New Mexico October Report

Dr. P. G. Cornish, Jr., secretary, New Mexico Board of Medical Examiners, reports 22 physicians licensed by endorsement, Oct. 12, 1931. The following colleges were represented:

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Birmingham Medical College, Alabama		(1914)	Alabama
Chicago College of Medicine and Surgery		(1917)	Illinois
Chicago Medical School		(1930)	Illinois
Rush Medical College		(1915)	Maryland
University of Illinois College of Medicine		(1931)	Illinois
Tulane University of Louisiana Medical Department		(1891)	Texas
Tulane Unversity of Louisiana School of Medicine		(1927)	New York
Baltimore Medical College		(1891)	Washington
Kansas City Hahnemann Medical College, Missouri		(1914)	Kansas
University of Nebraska Coll. of Med.		(1930)	Nebraska, Washington
National Normal University College of Med., Ohio		(1896)	Texas
Vanderbilt University School of Medicine		(1889)	Texas
Baylor University College of Medicine		(1929, 2), (1930, 2)	Texas
Southern Methodist University Med. Dept., Texas		(1914)	Texas
Southwestern University Medical College, Texas		(1911)	Texas
University of Texas School of Medicine		(1911), (1918)	Texas
Univ. of Lausanne Faculty of Med., Switzerland		(1921)*	New York

* Verification of graduation in process.

California October Report

Dr. Charles B. Pinkham, secretary, California Board of Medical Examiners, reports the written examination held at Sacramento, Oct. 20-22, 1931. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Forty-five candidates were examined, 41 of whom passed and 4 failed. The following colleges were represented:

College	PASSED	Year Grad.	Number Passed
College of Medical Evangelists		(1931, 5)	5
Stanford University School of Medicine		(1929), (1931, 3)	4
University of Colorado School of Medicine		(1931, 3)	3
Northwestern University Medical School		(1930), (1931)	2
Rush Medical College		(1928), (1929), (1931)	3
Indiana University School of Medicine		(1930)	1
Harvard University Medical School		(1926), (1930)	2
St. Louis University School of Medicine		(1929), (1930, 2)	3
Creighton University School of Medicine		(1931, 5)	5
University of Nebraska College of Medicine		(1930)	1
Cornell University Medical College		(1931)	1
New York Homeo. Med. Coll. and Flower Hospital		(1930)	1
University of Oregon Medical School		(1930)	1
University of Tennessee College of Medicine		(1930)	1
Baylor University College of Medicine		(1930)	1
University of Wisconsin Medical School		(1928), (1931)	2
University of Manitoba Faculty of Medicine		(1924)	1
Licentiate of the Royal Coll. of Physicians, England		(1908)	1
University of Amsterdam Medical Faculty		(1901)	1
University of Edinburgh Faculty of Medicine		(1918)	1
Irkutsk Medical Institute, U.S.S.R.		(1923)*	1

College	FAILED	Year Grad.	Number Failed
University of Illinois College of Medicine		(1931)	1
Kentucky University Medical Department		(1904)	1
Washington University School of Medicine		(1929)	1
Univ. of Bordeaux Faculty of Med. and Pharmacy		(1930)*	1

Dr. Pinkham also reports 3 physicians licensed by endorsement of credentials in October, 1931. The following colleges were represented:

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Jefferson Medical College of Philadelphia		(1913), (1923)	U. S. Army
Medical College of Virginia		(1914)	U. S. Navy

* Verification of graduation in process.

Michigan October Examination

Dr. Nelson McLaughlin, secretary, Michigan Board of Registration in Medicine, reports the written examination held at Lansing, Oct. 13-15, 1931. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. Six candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1931)*	83.7
Johns Hopkins University School of Medicine		(1929)	83.8
Michigan College of Medicine and Surgery		(1891)	79
Hahnemann Med. College and Hosp. of Philadelphia		(1931)	83.3
Marquette University School of Medicine		(1931)*	83.7
University of Toronto Faculty of Medicine		(1930)	86.2

Dr. McLaughlin also reports 24 physicians licensed by endorsement from Aug. 18 to Dec. 18, 1931. The following colleges were represented:

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists		(1931)	California, Oregon
Howard University School of Medicine		(1930, 2)	Maryland
Chicago College of Medicine and Surgery		(1917)	Illinois
Loyola University School of Medicine		(1930)	Illinois
Northwestern University Medical School		(1931)	Illinois
Northwestern University Woman's Medical School		(1897)	Illinois
Rush Medical College		(1928) Colorado, (1929), (1931)	Illinois
University of Illinois College of Medicine		(1926)	Illinois
Indiana University School of Medicine		(1930)	Indiana
State University of Iowa College of Med.		(1929), (1930)	Iowa
University of Kansas School of Medicine		(1906), (1929)	Kansas
Detroit College of Medicine		(1897)	Illinois
Creighton University School of Medicine		(1927)	Nebraska
University of Nebraska College of Med.		(1920), (1923)	Nebraska
Hahnemann Med. College and Hosp. of Philadelphia		(1930)	Penna.
Meharry Medical College		(1929)	Tennessee
Baylor University College of Medicine		(1928)	Texas

* These applicants will receive their M.D. degrees on completion of an internship.

Iowa October Examination

Mr. H. W. Grefe, director, Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Oct. 20-22, 1931. The examination covered 8 subjects and included 100 questions. An average of 75 per cent was required to pass. Eleven candidates were examined, all of whom passed. Five physicians were licensed by reciprocity in December, 1931. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Loyola University School of Medicine		(1931)	91.5,* 92,* 95.6*
Rush Medical College		(1931)	86.9
Sioux City College of Medicine		(1907)	75.5
College of Physicians and Surgeons, Boston		(1930)	92
Washington University School of Medicine		(1931)	94.8†
Creighton University School of Medicine		(1930)	90.4
McGill University Faculty of Medicine		(1921)	91.4
Karl Franzens University Faculty of Medicine, Graz		(1902)	75.5
University of Giessen Faculty of Medicine		(1925)‡	83.3

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1927) Ohio, (1931)	Illinois
University of Illinois College of Medicine		(1924), (1930)	Illinois
University of Nebraska College of Medicine		(1930)	Nebraska

* The M.D. degrees and licenses of these applicants are being withheld pending completion of an internship.
† License is being withhold pending completion of an internship.
‡ Verification of graduation in process.

Book Notices

Electrotherapy and the Elements of Light Therapy. By Richard Kovács, M.D., Clinical Professor and Director of Physical Therapy, Polyclinic Medical School and Hospital, New York. Cloth. Price, $6.50. Pp. 528, with 211 illustrations. Philadelphia: Lea & Febiger, 1932.

Among the pioneers in the promotion of electrotherapy in the United States is the author of this contribution. The material in the book is the basis of the courses of instruction in this subject given in the extension School of Medicine of Columbia University. The book begins with elementary electrophysics and proceeds from this theoretical basis to the technic of application, indications and contraindications of electrotherapy in various conditions. Like other writers, the author has been disturbed by lack of standardization in nomenclature, apparatus and similar factors to which the Council on Physical Therapy of the American Medical Association has given attention.

The book is divided into four parts—electrophysics, general electrotherapy and diagnosis, the elements of light therapy and applied electrotherapy. In the last mentioned section the use of electrotherapy in dermatology is discussed by Dr. J. J. Eller and its use in diseases of the ear, nose and throat by Dr. Wallace Morrison. The volume is certainly the most systematic contribution on the subject thus far available. It is orderly in arrangement, succinct and sound. It will be useful to practitioners in every field of medicine who avail themselves of the electrical forces, since it explains the apparatus used and the manner of use. It is an intensely practical book and quite up to date. Of special value is the section on electrodiagnosis with excellent tables of motor nerves and muscles which will be of aid to the neurologist and the diagnostician in whose practice electrodiagnostic tests may be frequently employed.

In the section on high frequency and diathermy, Dr. Kovács is again careful to avoid exaggeration and to indicate pointedly the limitations of this method. If there is any one section of the book with which disagreement may develop, it is that having to do with the use of static modalities. In this field there has always been difficulty in separating actual facts from those achieved by the power of suggestion.

The book may be recommended as a scientific contribution of great merit in a field in which there has been much unfortunate exploitation.

The Standard Metabolism of Boys (7 to 18 Years Inclusive). By Einar Bierring. Paper. Pp. 150, with illustrations. Copenhagen: Levin & Munksgaard, 1931.

This presents an extensive investigation involving about 1,000 experiments of the metabolism of 133 male subjects from 7 to 18 years of age. Bierring attempts to determine whether or not children are suited, under the present types of experimental control, for experiments in metabolism and also to throw light on the problem of the general trend of the metabolism during growth.

The study contains a review of the more significant investigations of standard metabolism (defined as the heat production of the fasting and reposing individual) of males under 18 years of age. A comparison of the standard values for the standard metabolism of normal boys, as reported by Du Bois (1917), Benedict and Talbot (1921), Cameron (1925), Bailey (1926), and Boothby and Sandiford (1929), led the author to conclude that "each standard must be considered an isolated whole typical only for the experimental conditions on which it is based." A summary of the experimental work done on the standard metabolism of boys leads to the statement that "the total heat production increases with age, height, weight, and surface area, whereas the heat production per unit of weight and surface area decreases during the interval considered (7-18 years)." The evidence concerning the increase in relative heat production at different periods of growth, e. g., at puberty, is not conclusive.

From a study of the constancy of respiratory quotients in normal healthy boys, the reliability of determinations of surface area by well known formulas and the coefficients of variability of single experimental series and the individual variability of whole series, Bierring concludes that metabolism experiments with boys from 7 to 18 years of age should be of as much clinical value as corresponding experiments with adults. He finds that the total heat production increases with increasing age, weight, height, and surface area. Relative heat production shows a nearly straight-line decrease with increasing age. There is no evidence of an increase in average heat production at the interval 7 to 13 years as found by Kestner and Knipping, at 12 to 13 years as reported by Du Bois, or at the period of puberty (Göttche, Lax and Petenyi). An individual increase in metabolism is found in a group of boys 14 years old and in a few boys 15 years of age (all manifesting signs of puberty) but in no case is the increase more than 13 per cent. Standard values of the standard metabolism of boys from 7 to 18 years of age are given in two tables expressed in terms of total calories referred to weight and calories per square meter, referred to age. The quantitative treatment of the data is thorough and sound. The presentation is scholarly.

Lane Lectures on Pharmacology. By Walther Straub, M.D., Ph.D., Professor of Pharmacology, University of Munich. Stanford University Publications, University Series, Medical Sciences, Volume III, No. 1. Paper. Price, $1. Pp. 87, with 9 illustrations. Stanford University: Stanford University Press, 1931.

The Lane lectures in this monograph were delivered by Professor Straub in April, 1929. A considerable range of subjects was covered: intoxicating drugs, ways to ideal anesthesia, chemistry and biochemistry of digitalis, general pharmacology of heavy metals, and camphor and the modern analeptics. The first lecture contains matters of general and popular interest based on much scientific and historical data, which are interpreted and correlated in interesting ways. The remaining five lectures give the results of the author's researches in experimental pharmacology. Straub's studies on digitalis naturally make his two lectures on this subject the choicest portion of the monograph. The lecture on heavy metals deals with fundamentals in the actions of these agents, including original work on chronic lead poisoning and some new work on the selective localization of uranium. The lecture on anesthesia recognizes the achievement of America in this field and gives a cross-section of the actions of the different types of anesthetic agents, including agents proposed for intravenous anesthesia, such as the barbitals and "Avertin." The lecture on camphor has two purposes: first, the illustration of the German method of instruction, that is, the lecture interspersed with demonstrations, and, second, the unfolding of a scientific problem, which in the particular case is an empiric drug (camphor) with a particular attribute, which is developed into desirable and practical substitutes, with the aid of chemical synthesis and pharmacologic analysis. Throughout these lectures the author easily lives up to a well earned reputation as a master of experimental investigation, who not only has original ideas and uses ingenious experimental devices but also knows how to hold the attention of his audience. In making good use of chemistry and in giving it due credit, and in creating new and useful drugs, Straub readily points out that the final and complete development is achieved pharmacodynamically. In a concluding phrase he tritely remarks, "chemistry experiments and pharmacology investigates." Straub's lectures should prove interesting and profitable reading for practitioners, medical students, teachers and investigators.

Rheumatoid Arthritis and Its Treatment: Studies from the Royal Mineral Water Hospital, Bath. By Vincent Coates, M.C., M.A., M.D., Consulting Physician, Trowbridge and District Hospital, and Leo Delicati, L.M.S.S.A., Resident Medical Officer, Royal Mineral Water Hospital, Bath. Cloth. Price, 6s. Pp. 114, with 12 illustrations. London: H. K. Lewis & Company, Ltd., 1931.

This little book is dedicated to the International League against Rheumatism. The material is based on the studies made at the Royal Mineral Water Hospital, Bath, England. The majority of patients are from the lowest economic level of society. The manual is an attempt to deal almost exclusively with the systemic and local treatments of rheumatoid arthritis, especially in regard to the prevention of contractures. The observations cover a period of several years, but for statistical purposes 100 consecutive cases of rheumatoid arthritis were considered. The book is written entirely from a therapeutic point of view. The authors outline the classification of joint diseases and give a description of the clinical picture of rheumatoid arthritis. Their classification includes infectious arthritis, metabolic arthritis, degenerative arthritis, mixed arthritis, and

neuropathic arthritis. They give also a list of the deformities that may occur in the various regions of the body. The writers believe that streptococcal vaccines given over a long period in doses carefully graduated to avoid reaction are helpful when streptococcal immunity is lowered. Sometimes staphylococcal vaccine is useful. Approximation of joint surfaces should be forbidden to any weight bearing joint, in the early inflammatory stage, except in a deep bath. Relaxation in a hot bath is the simplest method of getting a full joint movement daily which is to prevent organization of minute cobweb adhesions. This one full movement of each joint daily should be carried out when the patient is in a relaxed position. Gentle movements and daily massage obviate contracture at the knee. The authors found that local dressings and blisters are the two most useful remedies for the reduction of swelling with heat and wintergreen most useful for the reduction of pain, although a simple application of iodine is often efficacious. A joint should be assessed by the function it is capable of performing and not by its pathologic shortcomings. A roentgenogram is no criterion of the function a joint is capable of performing. Twenty-six case histories are given.

Modern Proctology. By Marion C. Pruitt, M.D., L.R.C.P., F.R.C.S., Associate in Surgery, Emory University School of Medicine. Cloth. Price, $8. Pp. 404, with 233 illustrations. St. Louis: C. V. Mosby Company, 1931.

One wonders why every writer of a new book speaks of proctology as a neglected field. It seems that there are countless books written on this limited subject. With few exceptions, little new has been added. The author devotes considerable space to the anatomy of the rectal area and to methods of examination, and one chapter to a description of methods of anesthesia. In general, the subject matter dealing with diseases of the anus and rectum is well presented. One might differ with the author in advising retention oil enemas of 10 ounces instead of much less or in prescribing liquid petrolatum and mild purgations to establish regulation of evacuations. No mention is made of the possible rôle of allergy in causation of pruritus ani and of mucous colitis. How much benefit can the oral administration of 0.65 Gm. of bismuth subnitrate or 0.3 Gm. of phenyl salicylate or sulphonated bitumen have in overcoming intestinal fermentation? One cannot become enthusiastic over the descriptions of diseases of the colon as mucous colitis, ulcerative colitis and diverticulitis. They are for from being complete. The sections dealing with operative technic are good. More stress should be laid on postoperative care. There is a profusion of excellent illustrations and the bibliography is extensive.

Arbeitsmedizinische Studien in Nord-Amerika und Süd-Afrika. Von Dr. Franz Koelsch, Professor an der Universität und an der Technischen Hochschule in München. Schriften aus dem Gesamtgebiet der Gewerbehygiene, Heft 37. Herausgegeben von der Deutschen Gesellschaft für Gewerbehygiene in Frankfurt a. M. Paper. Price, 14.50 marks. Pp. 210. Berlin: Julius Springer, 1931.

This is an account of the tour of a German industrial hygienist through portions of the United States and South Africa, visiting some of the principal industrial medical organizations and the persons in charge. The author says in the introduction:

> From the very beginning my interest and endeavors were not limited strictly to the hard and fast question of industrial medicine but included the social and humanitarian interests of the working man in general—his social level, his place in community life, the bearing that conditions in the shop and the wages paid, have on his life and mode of living, the insurance and welfare problem, etc. As all these social aspects involve one another, and to understand them it is necessary to know the particular function of each, so we must first investigate the organized labor conditions of the land in each instance.

Sections are devoted to the lands and peoples visited, their respective wealth and castes, their morale, wages and standards of living, extent of cooperation between the employers and employees, labor organization, opportunities, and the problem of home work, the old worker, the unemployed, employment insurance and welfare, types of plants, quality of fittings and equipment, plant hygiene, welfare of workers, the use of physiology and psychology in proper job placement, the services of the industrial physician, accidents and their prevention, mining, plant executives and plant supervision, medical facilities, the food of the worker in relation to his job, prohibition, organization of program and travel, Johannesburg, gold mining together with its social and hygienic achievements and the labor questions it involves, the problem of silicosis, the organization and function of medical organizations, South Africa and its people, the color question, the caste question, and the general social outlook. To persons in this country the booklet is of worth as an appraisal of industrial medicine in large industries by a well qualified outsider who is familiar with the activities of this type in other countries. Primarily it is designed to furnish information to German physicians and industrial hygienists on industrial medical, hygienic and social conditions in the United States and South Africa.

The Papyrus Ebers. Translated from the German Version. By Cyril P. Bryan, M.B., B.Ch., B.A.O., Demonstrator in Anatomy, University College, London. With an introduction by Professor G. Elliot Smith, M.D., D.Sc., Litt.D., Professor of Anatomy, University College, London. Cloth. Price, $3. Pp. 167, with 16 illustrations. New York: D. Appleton & Company, 1931.

Until the discovery of the Edwin Smith papyrus, the papyrus Ebers was considered the most important ancient medical document available. The new discoveries have not in any way replaced the interest in the Ebers papyrus; rather, they have intensified it. Many years ago an attempt was made to translate the Ebers papyrus into German. The present document offers not a complete translation but rather a popularization of the interesting information available in the document. It is essentially a guide to the materia medica and therapy of the period of about 1500 B. C.

Enfermedades de los viejos. Por Carlos Diez Fernandez, del Hospital Nacional de Enfermedades Infecciosas de Madrid. Nociones para el medico practico. Paper. Price, 6 pesetas. Pp. 232. Madrid: Javier Morata, 1931.

This is a clinical survey of diseases of old age. Pulmonary tuberculosis is more frequent than might be supposed and occurs oftener in women than in men; bronchopneumonia as a sequel to various debilitating conditions is fully described; the gravity of erysipelas, septicemias and the common cold are stressed. Cerebral and circulatory disturbances from arteriosclerotic changes are adequately discussed. Malignant conditions, although frequent in older people, decrease in their incidence with increasing age.

A Doctor of the 1870's and 80's. By William Allen Pusey. Cloth. Price, $3. Pp. 153, with 26 illustrations. Springfield, Illinois: Charles C. Thomas, 1932.

Fortunate is the son to whom his father is a hero. Fortunate also is the father whose son can with sincere appreciation recount the record of his father's useful life. From memories, from diaries and with excellent photographs made by himself at the time, Dr. Pusey reconstructs the life of a doctor of the old school in the years from 1880 to the beginning of the present century. The book serves, incidentally, the purpose of recording systematically the qualities of the practitioner of that day which endeared him in general to all the people and which make modern man view with regrets the coming of the machine age in medicine. The book is replete with citations to letters and documents which bring the reader promptly into the proper atmosphere for understanding. Dr. Pusey has also been exceedingly fortunate in his publisher. The book seems to have been designed and published *con amore*.

Lehrbuch der Allgemeinen Physiologie. Herausgegeben von Dr. Phil. et Med. Ernst Gellhorn, a. o. Professor der Physiologie an der Universität Halle. Paper. Price, 47 marks. Pp. 741, with 126 illustrations. Leipzig: Georg Thieme, 1931.

As the title indicates, this volume is a textbook of general physiology designed for students interested in the field. Written from the point of view first expressed by Claude-Bernard, the author does a most creditable and systematic job. At the end of each chapter there is a comprehensive bibliography. In succeeding chapters one finds a discussion of the cell as a physicochemical system, chemistry of cell processes, energetics of the living substance, the cell as a morphologic system, general physiology of cell development and architecture, general physiology of irritable processes, and tropisms. The practicing physician will not find the book serviceable to him although the phenomena discussed are at the basis of, or tantamount with, life itself.

Annual Report of the Board of Regents of the Smithsonian Institution Showing the Operations, Expenditures, and Condition of the Institution for the Year Ending June 30, 1930. (Publication 3077). Cloth. Price, $2. Pp. 650, with illustrations. Washington, D. C.: Supt. of Doc., Government Printing Office, 1931.

Most governmental documents, particularly the reports of government bureaus, are dry and uninteresting contributions of statistical material. The Smithsonian Institution is an exception. It provides the usual material included in government reports but the general appendix includes lectures and essays by workers in the institution which are worthy of record and study. For instance, the report for 1930 includes an essay entitled "Beyond the Red in the Spectrum," another on the modern sun cult, one on the autogiro; another on gliding, several reports on the weather, one on man and insects, another on general entomology, and many on biologic topics. There are also discussions on anthropology and ethnology. The material is beautifully printed, fully and handsomely illustrated, and well worthy of permanent record.

Die gesamte Kosmetik (Entstellungsbekämpfung): Ein Grundriss für Ärzte und Studierende. Von Dr. Martin Gumpert, Facharzt für Hautkrankheiten in Berlin. Paper. Price, 12.80 marks. Pp. 228, with 45 illustrations. Leipzig: Georg Thieme, 1931.

For those who are of the opinion that dermatology as a branch of medicine is threatened with extinction and that the future dermatologist may become a cosmetician the present volume will prove of interest. The title closen by Dr. Gumpert implies a broader conception of the subject, including the correction of cosmetic defects by operative procedures. There are chapters on the disfiguring skin diseases, on the technic of physical methods as applied in the cosmetic therapy of the skin, and a discussion of the varied medicinal agents used in the care of the normal and the diseased skin and its appendages. This book can be recommended as a sound, practical exposition of a phase of dermatology that is all too frequently left to the laity or to charlatans.

Medical Men in the American Revolution, 1775-1783. By Louis C. Duncan, Lieut. Colonel, U. S. Army, Retired. Paper. Pp. 414, with illustrations. Carlisle Barracks: Medical Field Service School, 1931.

A special issue of the *Army Medical Bulletin*, number 25, prepared by Lieut. Col. Louis C. Duncan, has just made available a complete account of medical men of the American Revolution. The *Bulletin* is a valuable contribution to American medical history. It indicates a vast amount of research and should be made available in permanent book form. The account is entertaining as well as instructive. It is supplemented by reprinting of numerous original documents, letters, official orders and reports, and includes many drawings and photographs assembled from various sources.

Osler and Other Papers. By William Sydney Thayer, M.D., LL.D. Cloth. Price, $3.50. Pp. 386. Baltimore: The Johns Hopkins Press; London: Humphrey Milford, Oxford University Press, 1931.

Dr. Thayer, for many years a leader in medicine in this country, recognized for his personality and his interests in the esthetic side of medical practice, has accumulated under one cover addresses delivered during many years. Five chapters of the book are devoted to intimate reminiscences of William Osler; others are biographic tributes to great figures, such as Fitz, Welch, Pasteur, Bright and Howland. A few of the essays deal with medical education, with the history of medicine and with the relationships of the physician to his profession and to the public. Dr. Thayer writes carefully, systematically and with a personal tone that is his own. His friends—and their number is legion—will appreciate the opportunity to have permanently this work, which is so much the man himself.

The Jungle of the Mind. By Edgar James Swift, Head of the Department of Psychology, Washington University, St. Louis. Cloth. Price, $2.50. Pp. 340. New York: Charles Scribner's Sons, 1931.

The mind of man is still much of a mystery. The great discoveries of science, themselves miraculous, merely confuse many of the public into believing that anything is possible and everything is credible. It has interested Professor Swift to consider the human mind as a jungle through which the path is only beginning to be found. His chapters on curiosities of the mind, on the will to believe, and on telepathy, memory and mental healing are amusing and instructive. He has collected his data from hundreds of sources and he illustrates each of his points with anecdote and case history. Into the midst of a vast amount of folly now being written on such subjects as behaviorism and psychoanalysis this book sweeps like a breath of fresh air. The book is exceedingly worth while as a contribution to rationalism and also as a contribution to philosophy. Furthermore, it will provide any reader several hours of extraordinarily good entertainment.

The Principles of the Prophylaxis of Leprosy. First General Report of the Leprosy Commission. League of Nations, Health Organisation. Series of League of Nations Publications, III. Health, 1931. III. 2. Official No.: C. H. 970. Paper. Price, 15 cents. Pp. 12. Geneva: League of Nations, 1931.

Prophylaxis of leprosy is not a problem that admits of solution by the application of any one measure but varies with geographic, economic, administrative, financial and social conditions. Treatment is an important part of prophylaxis, and the earlier this is instituted, the sooner the patient may become bacteriologically negative and clinically "cured." In countries where leprosy is prevalent, facilities should be available for clinics and dispensaries, scientific research and service for discharged lepers. There is a discussion of isolation and treatment and a plea for uniformity of terminology, records and technic of examination.

Midwifery. By Ten Teachers under the direction of Comyns Berkeley, M.A., M.D., M.C. Edited by Comyns Berkeley, J. S. Fairbairn and Clifford White. Fourth edition. Cloth. Price, $7.50. Pp. 740, with 301 illustrations. New York: William Wood & Company, 1931.

This book is simply written and is intended for students. It is written somewhat on the order of a manual, most phases of the subject being only briefly discussed. The book is divided into five sections, which include pregnancy, labor, the puerperium, the new-born child, and relief of pain and suffering in obstetric practice. A questionable procedure described under cesarean section is the delivery of the uterus onto the abdominal wall after the birth of the child. The sutures are put into the uterine wall with the uterus thus exposed. The illustrations are mostly diagrams and are instructive. Although written by ten contributors, the method of presentation is the same in all chapters, thus making the style appear individual. The book should be a valuable aid to the student preparing for examination or to the general practitioner needing a ready reference handbook on obstetrics.

Aversión y atracción en el matrimonio. Por el Dr. Th. H. Van de Velde. Traducción directa de la séptima edición alemana por José W. Nake, intérprete jurado de Madrid. Prólogo del Doctor José M. Sacristán. Paper. Pp. 354, with illustrations. Madrid: Javier Morata, 1931.

The Spanish translation of this German work is preceded by a few introductory remarks by Dr. José M. Sacristán. The educational value and the necessity of publications of such works as this by Van de Velde to the Spanish-speaking world are emphasized. The Spanish translation reads itself fluently and holds one's attention.

The Note-Book of Edward Jenner in the Possession of the Royal College of Physicians of London. With an Introduction on Jenner's Work as a Naturalist. By F. Dawtrey Drewitt, M.D., F.R.C.P. Cloth. Price, $1.25. Pp. 49. New York: Oxford University Press, 1931.

This volume is prefaced by a photogravure of Edward Jenner worthy of a place as an adornment in any medical office. The manuscript notebook of the great founder of modern immunology came into possession of the Royal College of Physicians in 1888. The manuscript consists of a notebook of eighty pages, some of which are blank. It covers the period from 1787 to 1806 and records observations made by Jenner concerning the habits of the cuckoo, the presence of hydatids in the bodies of various animals, and distemper in dogs. Edward Jenner was a naturalist as well as a physician. He made many necropsies on dogs that had died of distemper, his one important conclusion being that the lungs are often the seat of extensive inflammation. The book includes not only an exact transcription in good type of the contents of the book but also an appreciative essay by Dr. Drewitt. The reasonable price and the artistic character of this publication make it an inviting volume for any physician's personal collection.

Medicolegal

Liability of Charitable Hospital for Injury to Invitee

(Cohen v. General Hospital Soc. of Connecticut (Conn.), 154 Atl. 435)

The wife of the plaintiff, Cohen, was a patient in a hospital owned and operated by the defendant, the General Hospital Society of Connecticut. She had been discharged, and Cohen went to the hospital to take her home. While on the hospital premises he tripped over an iron pipe that had been negligently placed and permitted to remain near the exit from the hospital building. He brought suit for damages on account of the injuries that resulted from the fall. From a judgment in the trial court in favor of the hospital, he appealed to the Supreme Court of Errors of Connecticut.

The defendant, The General Hospital Society of Connecticut, was incorported by a special act of the General Assembly of the state in 1826, for the purpose of establishing and maintaining a general hospital in New Haven. By way of defense, it claimed that it was a state institution performing governmental functions. Therefore, it argued, it was immune from liability, under the theory that limits the liability of a municipal corporation for acts done by it in the performance of a governmental duty. The act under which the corporation was organized, said the Supreme Court of Errors, created a private corporation dedicated to the purpose of general and public charity. While the corporation is a public charity in the popular significance of the term and the benefits it bestows are public, its organization and management are private. Though it receives aid from the state in the way of exemption from taxation and by state appropriation toward its support, it is not a state institution and in its operation is not acting as an agency of the sovereign. It is therefore not entitled to immunity on the ground that it is an arm of the government engaged in the performance of a public governmental duty.

The Hospital Society claimed further that as it was a charitable institution its funds were held in trust for the particular charitable purposes for which they were given, that payment of damages awarded in actions for injuries resulting from neglect or wrongful acts was not a purpose contemplated by the trust, and that it would be a breach of trust to apply the funds to the payment of such damages. But, said the court, the fact that the hospital's funds are held in trust does not free it from liability for its wrongful acts. Being a corporation organized for charitable purposes, it is bound to apply its corporate funds to charitable purposes only. It holds such funds under a quasi trust arising from that restriction. In this respect, however, it does not differ from any business corporation, whose officials are bound to hold and apply its property only for the purposes for which the corporation was organized. Such immunity from liability for its wrongful acts as may be claimed by a charitable corporation must be based, not on the public character of its charity, nor on the fact that its funds are held in trust, but on its eleemosynary character. It has been said that public policy forbids the crippling or destruction of charities established for the benefit of the whole public, to compensate one person for injuries suffered through the negligence of the corporation or of its servants or agents; that it is better that an individual should suffer injury without compensation than that the public be deprived of the benefit of the charity. *Vermillion* v. *Woman's College of Due West,* 104 S. C. 197, 88 S. E. 649. However that may be, in most jurisdictions charitable hospitals are held immune from liability to their patients for the negligence of the hospital's employees or agents, but they are subject to actions in tort by strangers or by their own employees, and their funds subject to depletion by the payment of damages awarded in such actions. This has not resulted in crippling or destroying such charitable institutions in jurisdictions in which this principle is adhered to.

If the enforcement of the right of individuals to recover from charitable corporations does not deprive the public of the benefits of such institutions, we fail to see, said the court, on what ground it can be said that public policy requires that a charitable corporation should be granted absolute immunity from liability for its neglect or wrongful acts. It is a corporation capable of suing and being sued and liable on its contracts as is any other person, corporate or individual. That its funds have been dedicated to charity does not place it beyond the law; the will of the donor or donors of the funds of the institution does not exempt them from the operation of the general laws of the land. A charity should not be permitted to inflict injury on some persons without the right of redress, in order to bestow charity on others. The result would be to compel the injured person to contribute to the charity against his will. The modern tendency of the law is, on the contrary, to shift the burden from the innocent victim to the community at large.

Whether or not, and to what extent, a charitable corporation is liable in tort for negligence is a question that has often vexed the courts. The cases on the subject present an almost hopelessly tangled mass of reason and unreason. In a number of states the courts have held such corporations entitled to an absolute exemption from tort liability to every class of plaintiff. In the better reasoned cases the courts have held such institutions liable in tort to strangers, invitees and employees, not discovering any sound reason of public policy justifying an exemption from liability. Here the plaintiff was not a patient of the hospital; he was at most an invitee, when he went to the hospital for his wife, who had been a patient. The fact that he had agreed to pay for her care and treatment at less than its cost to the defendant did not place him in the same legal situation as his wife had she been the plaintiff. The defendant owed him the duty which any land owner owes to an invitee who comes on his premises. For the reasons stated the judgment of the trial court was reversed and the case remanded for a new trial.

Malpractice: Care and Skill Required of Chiropractor.—Since a chiropractor is required by law in California to use the same degree of care, diligence and skill in the treatment of his patients as is used by other chiropractors, the district court of appeal, fourth district, California, refused to disturb a judgment in favor of a patient against a chiropractor where there was evidence in the record supporting a jury's finding that the chiropractor had not possessed nor exercised the care and skill possessed and used by other chiropractors in that vicinity and in consequence had broken or torn the cartilage connecting his patient's ninth right rib with the sternum.—*Howe v. McCoy (Calif.), 298 P. 530.*

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Mobile, April 19-22. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association for Thoracic Surgery, Ann Arbor, Mich., April 18-20. Dr. Duff S. Allen, 3720 Washington Blvd., St. Louis, Sec'y.

American Association of Anatomists, New York, March 24-26. Dr. George W. Corner, University of Rochester School of Medicine, Rochester, N. Y., Secretary.

American Association of Pathologists and Bacteriologists, Philadelphia, April 28-29. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Association of Physical Anthropologists, Washington, D. C., March 21-23. Dr. D. J. Morton, 632 W. 168th St., New York, Sec'y.

American College of Physicians, San Francisco, April 4-8. Mr. E. R. Loveland, 133 Soutn 36th Street, Philadelphia, Executive Secretary.

American Physiological Society, Philadelphia, April 28-30. Dr. Arno B. Luckhardt, 5216 Greenwood Avenue, Chicago, Secretary.

American Society for Experimental Pathology, Philadelphia, April 28-30. Dr. C. Phillip Miller, Jr., University of Chicago, Chicago, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Philadelphia, April 27-30. Dr. V. E. Henderson, University of Toronto, Toronto, Secretary.

American Society of Biological Chemistry, Philadelphia, April 28-30. Dr. H. B. Lewis, University of Michigan Medical School, Ann Arbor, Secretary.

Arizona State Medical Association, Globe, April 21-23. Dr. D. F. Harbridge, 407 Goodrich Building, Phoenix, Secretary.

Arkansas Medical Society, Little Rock, April 5-7. Dr. William R. Bathurst, 814 Boyle Building, Little Rock, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 26-27. Dr. Walter Dent Wise, 1211 Cathedral Street, Baltimore, Secretary.

Medical Society of the Missouri Valley, Omaha, Neb., March 29-31. Dr. Joseph D. McCarthy, 107 South 17th Street, Omaha, Secretary.

Mississippi State Medical Association, Jackson, April 12-14. Dr. T. M. Dye, Clarksdale, Secretary.

North Carolina, Medical Society of the State of, Winston-Salem, April 18-20. Dr. L. B. McBrayer, Southern Pines, Secretary.

South Carolina Medical Association, Columbia, April 19-21. Dr. E. A. Hines, Seneca, Secretary.

Southeastern Surgical Congress, Birmingham, Ala., March 7-8. Dr. B. T. Beasley, 45 Edgewood Avenue, Atlanta, Ga., Secretary.

Tennessee State Medical Association, Memphis, April 12-14. Dr. H. H. Shoulders, 706 Church Street, Nashville, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

1: 233-272 (Dec.) 1931

Treatment of Fibroid Tumors of Uterus: Analysis of 318 Cases. W. C. Dixon, Nashville, Tenn.—p. 233.

Pellagra. W. D. Partlow, Tuscaloosa.—p. 237.

Childhood Type of Tuberculosis. P. W. Auston, Montgomery.—p. 238.

Early Diagnosis of Pulmonary Tuberculosis. T. D. Rivers, Montgomery.—p. 242.

Home Treatment of Pulmonary Tuberculosis. S. B. McPheeters, Montgomery.—p. 245.

Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. N. R. Clarke, Jr., Mobile.—p. 250.

Tuberculosis of Kidney: Report of Cases. C. A. Grote, Huntsville.—p. 259.

American Heart Journal, St. Louis

7: 133-278 (Dec.) 1931

*Congenital Medial Sclerosis of Coronary Artery. R. W. Kissane, Columbus, Ohio, and R. S. Fidler, Springfield, Ohio.—p. 133.

*Rheumatic Heart Disease: I. Incidence and Rôle in Causation of Death: Study of Five Thousand Two Hundred and Fifteen Consecutive Necropsies. D. Davis and Soma Weiss, Boston.—p. 146.

*Studies in Congestive Heart Failure: XVI. Clinical Value of Ventilation Test in Estimation of Cardiac Function. T. R. Harrison, S. Harris, Jr., and J. A. Calhoun, with assistance of M. M. Tims, Nashville, Tenn.—p. 157.

*Depression of Vomiting Reflex by Digitalis Bodies. H. Gold, Janet Travell and N. Kwit, New York.—p. 165.

Eosinophilia Due to Administration of Digitalis. A. E. Smith and S. R. Benner, St. Louis.—p. 182.

Observations on Duration of Electrical Systole of Heart, with Especial Reference to Effect of Digitalis. K. Berliner, New York.—p. 189.

Accuracy of Einthoven's Equation. F. N. Wilson, A. G. MacLeod and P. S. Barker, Ann Arbor, Mich.—p. 203.

*Potential Variations Produced by Heart Beat at Apexes of Einthoven's Triangle. F. N. Wilson, A. G. MacLeod and P. S. Barker, Ann Arbor, Mich.—p. 207.

Localized Pleural Effusion in Heart Failure: Two Cases. J. M. Steele, New York.—p. 212.

Incidence of Heart Disease and Etiologic Types in Southern Dispensary. E. H. Schwab and V. E. Schulze, Galveston, Texas.—p. 223.

Large Q-Wave of Electrocardiogram: Correlation with Pathologic Observations. N. M. Fenichel and V. H. Kugell, New York.—p. 235.

Nature of Experimental Flutter and Fibrillation of Heart. W. A. Brams and L. N. Katz, Chicago.—p. 249.

Congenital Heart Disease: Clinical and Pathologic Study of Two Cases of Truncus Solitarius Aorticus (Pulmonary Atresia). M. A. Kugel, New York.—p. 262.

Congenital Medial Sclerosis of Coronary Artery.—Kissane and Fidler report a case of congenital medial sclerosis of the coronary arteries and present a review of the literature. The process is noninflammatory and is characterized by a primary medial thickening, confined to the larger coronary branches. The process is probably an earlier stage than those previously reported. The electrocardiogram shows a T-wave similar to that seen in the more familiar types of coronary sclerosis. The authors suggest the name of congenital medial sclerosis of the coronary arteries.

Rheumatic Heart Disease.—Davis and Weiss state that, among the 5,215 consecutive necropsy examinations of patients from the poorer class who were cared for in the Boston City Hospital between the years 1905 and 1929 inclusive, a combined clinical and morphologic study revealed rheumatic heart disease in 474, or 9.1 per cent, of the cases. Rheumatic heart disease was found in 56.6 per cent of the males, and in 43.4 per cent of the females in the group with rheumatic heart disease. The sex distribution in the total necropsy examinations was: males, 62 per cent; females, 38 per cent. Thus rheumatic heart disease was slightly more prevalent among the females. Eighteen, or 3.8 per cent, of the total number with rheumatic heart disease were Negroes. Eight per cent of the patients examined post mortem were Negroes. This would indicate that rheumatic heart disease occurs only about half as frequently among Negroes living in New England as among the white race. Rheumatic heart disease was directly responsible for death in 164 instances, or 34.5 per cent, of the total group with rheumatic heart disease. In an additional group of forty-one cases, corresponding to 8.6 per cent of all the cases in this group, subacute bacterial endocarditis was superimposed on rheumatic disease. In twenty-one cases, corresponding to 4.4 per cent of these cases, malignant endocarditis developed in association with rheumatic heart disease. In two additional cases, secondary malignant endocarditis was independent of the rheumatic heart disease. As the subacute and primary acute endocarditis developed on previously damaged rheumatic valves, in this group, representing 13 per cent of all cases of rheumatic heart disease, death was caused indirectly by rheumatic heart disease. Rheumatic heart disease contributed to death in forty-one instances, or 8.6 per cent, of the total cases. In 205 cases, or 43.2 per cent of the cases of rheumatic heart disease, the character of the cardiac involvement was such that the lesions did not contribute to death. Rheumatic heart disease is surprisingly prevalent among the poorer section of the population of Boston. Its frequency (9.1 per cent) approaches that of carcinoma (10.4 per cent). Rheumatic heart disease frequently exists as a mild "forme fruste" manifestation, without causing obvious impairment of the circulation.

Congestive Heart Failure.—Measurements of the vital capacity and of the ventilation on the performance of a series of standardized exercises were made by Harrison and his associates on 100 subjects. Of these, twenty-one were normal, sixteen had cardiac neurosis, ten had organic cardiac disease without symptoms, twenty-one had dyspnea on exertion only, and thirty-two had, in addition to dyspnea on exertion, some respiratory discomfort at rest. From the measurements a value called the ventilation index, which is a fairly close objective expression of the degree of dyspnea, was calculated. Analysis of the data shows that the determination of the ventilation index is of little or no value in the diagnosis of the presence or absence of organic heart disease, because patients with cardiac neurosis, patients with asymptomatic cardiac disease and normal subjects all occasionally have borderline tests, although the majority of patients in these groups have normal values. Patients with cardiac dyspnea nearly always have high values for the ventilation index but in such patients the customary methods of study are usually adequate to establish a diagnosis of the presence of organic cardiac disease. In a given case repeated determinations of the ventilation index may be of considerable value in prognosis. Single tests give relatively little information as to the outlook. In general, the patients with low values have a good prognosis and those with very high values have a poor outlook but exceptions are fairly numerous because the test measures only the degree of dyspnea at the moment and is not influenced by such extremely important factors as the liability to infection, the tendency to thrombosis or the likelihood of coronary and other vascular accidents. The ventilation test appears to be of definite clinical value in one group of cases: namely, in those patients who have both organic and functional disorders referable to the heart. Such instances are not uncommon and the ventilation test allows one to determine with fair accuracy how much of the patient's dyspnea is due to the cardiac neurosis and how much to the cardiac disease. This information, which cannot be obtained by any other method, may be of considerable value in prognosis and in treatment. The authors believe that the chief value of the ventilation test is in research, because it provides a method for determining quantitatively the effect of various therapeutic measures on dyspnea.

Depression of Vomiting Reflex by Digitalis Bodies.—Gold and his associates describe experiments in which they noted that repeated doses of the digitalis bodies may depress the vomiting reflex while simultaneously increasing the intensity of the cardiac poisoning, so that after an initial period of vomiting the continued administration of these drugs may fail to produce emesis and may even cause death without further vomiting. These experimental results suggest the need of caution in relying on nausea and vomiting as measures of the degree of cardiac poisoning in the clinical use of the digitalis bodies.

Einthoven's Triangle.—Wilson and his associates describe a method by means of which it is possible to determine the potential variations produced by the heart beat at any one or all of the apexes of Einthoven's equilateral triangle. It is consequently possible to determine the potential variations produced by the heart beat at any point of the body by leading from this point to the left leg, or the left or right arm, and subtracting the effect produced by the potential variations of this extremity from the recorded curve. It is possible by this method to free curves obtained by leading from points on or near the heart to points at a distance, such as on the left leg, from the influence exerted by potential variations at the distant electrode.

American J. Medical Sciences, Philadelphia

183: 1-152 (Jan.) 1932

*Metabolic Studies in Addison's Disease: Effect of Treatment with Cortical Hormone of Suprarenal Gland. C. H. Greene and L. G. Rowntree, Rochester, Minn., and W. W. Swingle and J. J. Pfiffner, Princeton, N. J., with assistance of Mary Sue Bledsoe.—p. 1.

*Enteral Administration of Insulin to Normal Dogs. J. L. Bollman and F. C. Mann, Rochester, Minn.—p. 23.

Electrocardiographic Diagnosis of Coronary Occlusion by Use of Chest Leads. C. C. Wolferth and F. C. Wood, Philadelphia.—p. 30.

*Auricular Fibrillation: Its Etiology, Age Incidence and Production by Digitalis Therapy. D. McEachern and B. M. Baker, Jr., Baltimore. —p. 35.

Etiology, Prognosis and Treatment of Auricular Fibrillation. W. D. Stroud, L. B. Laplace and J. A. Reisinger, Philadelphia.—p. 48.

Subacute Bacterial Endocarditis, with Especial Reference to Valvular Lesions and Previous History. M. N. Fulton and S. A. Levine, Boston.—p. 60.

Sarcoma of Spleen. L. Frank, Louisville, Ky.—p. 77.

Chemical Factors Regulating Blood Pressure. R. H. Major, Kansas City, Kan.—p. 81.

Study of Yellow Fever by Protection Test in Mice. F. F. Russell, New York.—p. 87.

Presence of Heterophil Antibodies in Infectious Mononucleosis. J. R. Paul and W. W. Bunnell, New Haven, Conn.—p. 90.

*Myeloid Cell Hyperplasia of Bone Marrow in Agranulocytic Angina. T. Fitz-Hugh, Jr., and E. B. Krumbhaar, Philadelphia.—p. 104.

Response of Reticulocytes to Iron. G. R. Minot and C. W. Heath, Boston.—p. 110.

Metabolic Studies in Addison's Disease.—Greene and his associates made a study of the chemical and metabolic changes observed in cases of Addison's disease, and the effect on these changes of treatment with the cortical hormone of the suprarenal. They emphasize that the clinical course of a case of Addison's disease may arbitrarily be divided into three stages: (1) the stage of initial destruction of the suprarenals; (2) the stage of the recognizable clinical syndrome, and (3) the terminal stage or crisis. Usually the disease is not recognized until the second stage is reached. At this time there may be loss of weight, asthenia and definite undernutrition. The basal metabolic rate is reduced slightly and there is some reduction in the blood sugar. Such changes become less with treatment, and more marked in the periods of crisis. The quantities of the various constituents of the urine in Addison's disease corresponded to the lower levels of the usually accepted normal standards. Creatinuria was present in a considerable proportion of cases. Retention of practically all urinary constituents was noted in one case in the course of a period of diminished urinary output. The nitrogen balance of those patients who were losing weight was negative. The majority of patients gained weight as a result of treatment with the suprarenal cortical hormone. In such cases the nitrogen balance became markedly positive. The period of crisis was characterized by gastro-intestinal upsets, nausea and vomiting, pains, circulatory collapse, low blood pressure, dehydration and renal insufficiency. The effect of the last two dominated the chemical picture at this time. The authors consider the relation between the chemical and metabolic changes observed in cases of Addison's disease, and those reported in suprarenalectomized animals, and the use of these changes for the standardization of preparations of the suprarenal cortical hormone.

Enteral Administration of Insulin.—Bollman and Mann report that large amounts of insulin may be instilled directly into the duodenum, jejunum or ileum without any appreciable effect on the sugar of the blood of normal dogs, except for the slight effects when concentrated insulin was used. The addition of acid, blood or bile to insulin thus administered did not alter this. If insulin is injected into the lumen of an isolated portion of ileum the blood sugar of the animal is not affected, but small amounts of insulin given submucously produce typical hypoglycemia. Insulin gradually disappears from within the lumen of the ileum. With the doses used by the authors, sufficient insulin remains after one hour to produce definite hypoglycemia if the insulin is injected subcutaneously. Insulin incubated with ileac washings is not so rapidly destroyed. It would appear that the intestinal mucosa inactivates insulin so that it is not effectively absorbed. Small amounts of insulin may escape inactivation if sufficiently concentrated insulin is applied to the intestine.

Auricular Fibrillation.—McEachern and Baker made a study of 575 consecutive cases of auricular fibrillation confirmed by electrocardiographic records. The etiologic relationships to the various forms of cardiac disease are tabulated. The infrequent occurrence of the arrhythmia in the first decade of life is discussed and two additional instances are recorded. Emphasis is laid on the rarity of auricular fibrillation in syphilitic cardiovascular disease. In the authors' series, 35 per cent of the cases were associated with rheumatic heart disease and only 3 per cent with syphilitic cardiovascular disease. Note is made of the production of auricular fibrillation by the administration of digitalis.

Agranulocytic Angina.—Fitz-Hugh and Krumbhaar found myelocytes and myeloblasts in the bone marrow at necropsy in more than normal numbers in a case of typical "agranulocytic angina" in which the antemortem blood count was 200 white cells per cubic millimeter (all lymphocytes), i. e., a marked absolute reduction of lymphocytes and absence of all other white cells. Based on this and similar cases recorded in the literature, the authors raise objection to the current hypothesis of "granulocytic aplasia" as constituting the "primary" pathologic mechanism of the disease, and in its place they propose an hypothesis of "maturation arrest." As there is an absolute reduction of lymphocytes in the blood stream as well as of neutrophils and on account of certain analogies with pernicious anemia, designation such as pernicious leukopenia is suggested as preferable to the more widely used names for this disease.

American Review of Tuberculosis, New York

25: 1-152 (Jan.) 1932

*Environments in Tuberculosis. H. Sewall, Denver.—p. 1.

*Basal Pulmonary Lesions. P. Dufault, Rutland, Mass.—p. 17.

Examination of Blood as Aid in Diagnosis of Hilus Lymph-Node Tuberculosis. E. Friedman, W. Dameshek and J. B. Hawes 2d, Boston. —p. 24.

*Diagnosis of Diseases of Hip Joint, with Especial Reference to Tuberculosis of Hip. R. M. Burlingame, Denver.—p. 32.

Hemoptysis in Pulmonary Tuberculosis: One Thousand Consecutive Patients. A. R. Masten, Wheat Ridge, Colo.—p. 42.

*Tuberculosis and Toxic Goiter. L. W. Frank, Denver.—p. 49.

Lysozyme and Tuberculosis. H. J. Corper, Denver.—p. 59.

Glycerin as Vehicle for Tuberculin Dilutions. H. S. Willis, Northville, Mich.—p. 67.

*Early Cellular Reactions in Lungs of Rabbits Injected Intravenously with Human Tubercle Bacilli. A. J. Vorwald, Chicago.—p. 74.

Interpretation of Apical Linear Shadows in Roentgenograms of Thorax. P. M. Andrus, London, Ont.—p. 89.

*Effect of Paralysis of Hemidiaphragm on Intercostal Activity. J. W. Gale and W. S. Middleton, Madison, Wis.—p. 99.

*Association of Tuberculosis and Carcinoma. F. G. Cooper, Huntington Park, Calif.—p. 108.

Antisyphilitic Treatment in Tuberculosis Patients. L. Fisher, Waverley Hills, Ky.—p. 148.

Environments in Tuberculosis.—Sewall believes that nothing conduces more to clarity of perception or suggests new meanings in old phenomena than a formal reclassification of one's stock of knowledge. From this point of view he was led to consider various different factors which are confused together in the term "environment," and in the attempt to analyze the concept he was constrained to divide them into five different groups: the external environment, the internal environment, the voluntary neuromuscular environment, the vegetative environment (including the endocrine system) and the psychic environment. The author discusses these factors in their relationship to tuberculosis.

Basal Lesions.—Dufault presents a brief review of the literature on basal lesions. The prevailing opinion is that tuberculosis located exclusively at the base of the lungs is extremely rare. Five typical cases of basal lesions mistaken for tuberculosis are reported. The author believes that the bronchoscope is of considerable value and should have its place in all well equipped sanatoriums.

Diagnosis of Hip-Joint Disease.—Burlingame considers that in the differential diagnosis of tuberculosis of the hip, coxa plana, coxa vara, acute infectious arthritis and acute transient epiphysitis, the most difficult is in differentiating tuberculosis of the hip and infectious arthritis, especially in the subacute stage. The history of the acute onset in infectious arthritis, the absence of demonstrable tuberculosis elsewhere in the body, negative skin tests, all aid in the diagnosis. In hip-joint disease, beginning with pain, increased temperature and increased leukocyte count, the hip joint should be aspirated and cultures of the fluid taken in an attempt to demonstrate pyogenic infection. Coxa plana occurs during the middle years of childhood, between the ages of 5 and 10, while tuberculosis occurs usually between 3 and 5 years of age. In coxa plana the motion is limited chiefly in two directions, abduction and internal rotation, while in tuberculosis the motion is limited in all directions. Muscle spasm in coxa plana is mild and in tuberculosis severe. Roentgen examination demonstrates characteristic changes which are quite different from those of tuberculosis. In coxa vara symptoms are almost identical with those of coxa plana, except that the hip is frequently rotated outward. Coxa vara is nearly always observed in the neuter type of individual. Roentgen examination demonstrates typical epiphyseal separation, which confirms the diagnosis. Psoas abscess may frequently be confused with tuberculosis, but here the range of motion is limited chiefly in extension. There is often a mass palpable above Poupart's ligament and there is usually evidence of a lesion of the spinal column.

Tuberculosis and Toxic Goiter.—Frank presents a case in which toxic goiter and toxic tuberculosis occurred in the same patient. Some enlargement of the thyroid and mild manifestations of hyperthyroidism are common in tuberculosis, particularly in young female patients, but toxic forms, namely, toxic diffuse goiter and toxic nodular goiter, are rare.

Early Cellular Reactions in Lungs of Rabbits.—Vorwald describes experiments in which he noted that the cells that respond first to an intravenous injection of human-type tubercle bacilli in rabbits (0.1 mg. per kilogram of animal weight) are the polymorphonuclear leukocytes. This reaction, while transitory, is not one of negligible significance. It is through the agency of the polymorphonuclear leukocytes that the site of subsequent development of the tubercle is determined. These cells phagocytose the tubercle bacilli in the blood stream and stagnate in small accumulations in the capillaries where the current is slow. In this way injected bacilli are concentrated and localized. The focalized accumulations of polymorphonuclear leukocytes form the groundwork from which the epithelioid tubercles develop. Mononuclear exudate cells are preponderant in the cellular response after the first few hours (from fourteen to eighteen hours on). They mingle with the polymorphonuclear leukocytes, phagocytose and digest them and take up their content of tubercle bacilli. In this way, by replacement of the leukocytic mass, the mononuclear-cell tubercle, ultimately the epithelioid tubercle, develops. The increase in mononuclear exudate cells in the field of inflammation, in almost total absence of mitotic figures in such foci, indicates that the majority of reacting cells of this type are hematogenous in origin.

Paralysis of Hemidiaphragm.—Gale and Middleton report observations which led them to conclude that phrenic block, with resultant paralysis of the hemidiaphragm, relaxation and compression of the lung, produces a certain measure of physiologic rest. This rest is not complete when other mechanical factors are considered (namely, the action of the intercostal and scalene muscle groups). Following phrenic block there is overactivity of the intercostal muscles, as reflected in increased movement of the thoracic cage at the level of the third and eighth ribs on the homolateral side. This overactivity may well explain the unfavorable results obtained in a certain group of patients following this operation. Certain adjunct operations (scaleniotomy and upper intercostal neurectomy) have proved of definite therapeutic value when performed simultaneously with phrenic block or at a later date to supplement the latter. These procedures decrease or abolish the overactivity of these two muscle groups induced by phrenic block and at the same time conserve the desired results of the latter operation, thus promoting more complete physiologic rest.

Tuberculosis and Carcinoma.—Cooper reviews the literature relative to the association of carcinoma and tuberculosis. This includes several hundred reports of cases in which the two diseases were present in the same organ. In addition, twenty-four cases observed at the Mayo Clinic, and never reported before, in which malignant and tuberculous lesions were intimately associated are presented. The frequency of this association is fairly convincing evidence that the two diseases are not antagonistic. Tuberculosis may exist with all degrees of malignant tumor. The finding of tuberculosis in an organ or biopsy specimen does not exclude the possibility of malignant tumor.

Archives of Ophthalmology, Chicago

6: 817-984 (Dec.) 1931

*Dystrophy of Corneal Endothelium: Its Recognition and Clinical Significance. L. C. Peter, Philadelphia.—p. 817.
Retinal Perivascular Delineation. J. N. Evans, Brooklyn.—p. 823.
Postoperative Nonexpulsive Subchoroidal Hemorrhage. B. Samuels, New York.—p. 840.
*Tonoscopy. A. Magitot, Paris, France.—p. 852.
Iso-Electric Point of Lens Protein. C. S. O'Brien and P. W. Salit, Iowa City.—p. 870.
Roenne's Nasal Step as Studied with Stimuli of Different Visibilities. C. E. Ferree, G. Rand and L. L. Sloan, Baltimore.—p. 877.
Metabolism of Retina: Further Notes: F. H. Adler, Philadelphia.—p. 901.
*Subnormal Accommodation. A. de H. Prangen, Rochester, Minn.—p. 906.

Dystrophy of Corneal Endothelium.—From the study of twenty-two cases of dystrophy of the corneal epithelium, Peter concludes that the condition is progressive and reaches its maximum when the entire endothelium is destroyed. Vision is lowered to about 6/7.5 to 6/9 from this cause alone. It is a degenerative process which, probably, is caused by a lack of nutrition of the ocular tissues. Although it is found in association with senile and nuclear cataract, the two conditions are related only in being an expression of ocular complications in patients suffering from nutritional disturbance. The condition is of much more frequent occurrence than its general recognition would indicate. The cases reported were found in the author's practice during the last year or eighteen months. The dystrophy, when well advanced, can be recognized without the aid of the slit lamp, but with good technic the slit lamp verifies the diagnosis in a most satisfactory manner. Patients with endothelial dystrophy are poor risks for intra-ocular surgical procedures. The protracted recovery of the one patient on whom the author operated would lead him to operate reluctantly for lens extraction, unless the patient is informed as to the probable operative complications that are apt to be encountered. Although vision is considerably reduced in the final stage of the disease in the cases thus far examined, the condition did not progress beyond the stage of complete vacuolization. This stage seems to be a stationary one. There is no tendency to regeneration. Dystrophy, therefore, seems to be the logical term to apply to the process.

Tonoscopy.—According to Magitot, the term "tonoscopy" (Terson) designates the method by which one evaluates the blood pressure in the vessels of the retina. Tonoscopy has in a few years enabled one to acquire interesting information, concerning not only the ocular but also the intracranial circulation. For the therapeutist, it therefore completes in a useful manner the study of the retinal vessels. Its principal interest, outside of ophthalmology, is to supply the neurologist with information as to the state of the intracranial pressure. Although it is a young science and susceptible of being improved, the method is worthy of being examined by all ophthalmologists, and the author believes that in a few years it will become as current as the act of determining systemic pressure with the sphygmomanometer or ocular tension with the tonometer.

Subnormal Accommodation.—Prangen states that subnormal accommodation exists as a definite clinical entity afflicting persons who have not reached the presbyopic age. It might be recognized oftener if strict attention were paid to individual accommodative power and its interpretation. Focal infection, particularly dental infection, seems to be a major cause. Fixation of the near points, without range, is an interesting and significant feature in accommodative asthenia.

Archives of Pathology, Chicago

12: 869-1066 (Dec.) 1931

Hemorrhage and "Shock" in Traumatized Limbs: Changes in Total, Free and Bound Water of Blood and Muscle. W. Robinson and Eloise Parsons, Chicago.—p. 869.

Nonsyphilitic Aortic Valve Deformity. B. J. Clawson, Minneapolis. —p. 889.

Homologous Liver as Stimulus to Hepatic Regeneration. F. A. McJunkin and H. C. Breuhaus, Chicago.—p. 900.

*Asbestosis: Two Cases. H. L. Stewart, C. J. Bucher and E. H. Coleman, Philadelphia.—p. 909.

Tularemic Leptomeningitis: Case. A. R. Bryant and E. F. Hirsch, Chicago.—p. 917.

*Experimental Arteritis and Arteriosclerosis Associated with Streptococcal Inoculations. R. L. Benson, K. G. Smith and H. Semenov, Portland, Ore.—p. 924.

*Hypervitaminosis D and Arteriosclerosis. H. L. Vanderveer, Toronto, Canada.—p. 941.

*Early Cellular Reaction to Tubercle Bacilli: Comparison of this Reaction in Normal and Tuberculous Guinea-Pigs and Guinea-Pigs Immunized with Dead Bacilli. E. R. Long, A. J. Vorwald and Lilian Donaldson, Chicago.—p. 956.

Asbestosis.—Stewart and his associates report two cases of pulmonary asbestosis. In the first case the symptoms were relatively unimportant. In the second case the disease was concomitant with tuberculosis and, with it, was the cause of death. The similarity between some of the features of tuberculosis in childhood and tuberculosis complicated by asbestosis is suggested. In asbestosis the lung is not the only organ invaded by asbestosis bodies. The authors show that the spleen and lymph nodes may harbor large asbestosis bodies. They believe that from the histories of the cases they report there appears to be a further need for study along the lines of prevention of this disease.

Experimental Arteriosclerosis.—Benson and his associates describe lesions in the aorta and other arteries in rabbits inoculated with streptococci from sclerotic coronary arteries, coronary thrombi and sinusitis. These lesions include acute arteritis with or without thrombosis and arteriosclerosis of the aorta and other arteries. The experimental changes are comparable with the corresponding arterial diseases found in man. Slight arterial changes were observed in monkeys following injections of streptococci, but the changes are regarded as inconclusive.

Hypervitaminosis D and Arteriosclerosis.—According to Vanderveer, the arteriosclerosis produced by him in rabbits by hypervitaminosis D is not specific. The earliest calcareous deposits in the blood vessels are in the form of an incrustation about the elastic fibers in the media, and are preceded by some change in the adjacent intercellular substance. Degeneration of the muscle cells of the media appears at a later period. In the author's experiments, the order of involvement of tissues showing calcareous deposits as a result of hypervitaminosis D, other than arteries, was: kidneys, stomach, heart, liver and lungs. Tissue degeneration due to a toxic process precedes calcification of these organs. The proliferative lesions occurring in the intima in arteries are not dependent on a primary degeneration of the media. No changes occurred in the bone marrow or in the parathyroids comparable to those found in hyperparathyroidism.

Cellular Reaction to Tubercle Bacilli.—Long and his associates describe experiments from which they conclude that prompt localization of tubercle bacilli is brought about by exudation of polymorphonuclear leukocytes and phagocytosis of the bacilli by these cells. Although the bacilli are at first widely spread and the initial polymorphonuclear reaction is correspondingly diffuse, aggregation of the leukocytes, containing all the bacilli injected, into distinct and separate foci soon occurs. The site of future true tubercle formation is thus determined, for the polymorphonuclears are soon replaced by large mononuclears, which, as shown by the experience of many other investigators, later develop into epithelioid cells with more abundant cytoplasm. The fact that replacement of the polymorphonuclear mass by large mononuclears did not occur appreciably earlier in the locally immunized testis, already full of mononuclear cells, than in the other testes of the series suggests that in these experiments, at least, the large mononuclear cells concerned in the reaction came directly from the blood stream and were not derived locally. An already present tuberculosis in the animal greatly accelerates the reacting capacity of the polymorphonuclear leukocytes. This may be looked on as simply one feature of a typical tuberculin reaction. Previous inoculation with dead bacilli brings about a similar allergic state, although the acceleration and increased intensity of inflammatory reaction over that seen in the normal animal are not nearly so great as in the truly tuberculous animal.

Canadian Public Health Journal, Toronto

22: 595-644 (Dec.) 1931

Anterior Poliomyelitis in Alberta in 1930. A. C. McGugan, Edmonton, Alta.—p. 595.

Tuberculosis in Hamilton. J. Roberts, Hamilton, Ont.—p. 600.

Carbon Monoxide Poisoning. D. Nicholson, Winnepeg, Manit.—p. 606.

Maternal and Child Welfare: Rôle of Medical Officer. J. Gregoire, Beauceville, Que.—p. 610.

Stream Pollution Problem in Canada: International Aspect. G. H. Ferguson, Saginaw, Mich.—p. 627.

Technic for Determination of Stream Pollution. A. V. DeLaporte, Toronto, Ont.—p. 630.

Racial Origin in Vital Statistics. S. Muirhead, Regina, Sask.—p. 633.

Colorado Medicine, Denver

29: 1-50 (Jan.) 1932

Review of Goiter Problem. S. D. van Meter, Denver.—p. 5.

Sarcoma of Small Intestine. Nolie Mumey, Denver.—p. 12.

Fibrosis of Bladder Neck with Regard to Its Pathology and Rational Treatment. W. M. Spitzer, Denver.—p. 18.

Agranulocytosis: Report of Case in Child. E. Friedman and T. Smith, Jr., Denver.—p. 26.

Journal of Experimental Medicine, New York

55: 1-168 (Jan.) 1932

*Rôle of Soluble Specific Substance in Oral Immunization Against Pneumococcus Types II and III. V. Ross, New York.—p. 1.

Fate of Orally Administered Soluble Specific Substance of Pneumococcus Types I, II and III. V. Ross, New York.—p. 13.

*Urea Tolerance After Unilateral Nephrectomy in Rabbits. H. T. Karsner, R. Straus, R. A. Moore and R. F. Hanzal, Cleveland.—p. 27.

Correlation Between Histologic Changes and Fate of Living Tubercle Bacilli in Organs of Tuberculous Rabbits. M. B. Lurie, Philadelphia. —p. 31.

Identity of Mechanisms of Type-Specific Agglutinin and Precipitin Reactions with Pneumococcus. T. Francis, Jr., New York.—p. 55.

*Protection of Adrenalectomized Animals Against Bacterial Intoxication by an Extract of Adrenal Cortex. F. A. Hartman and W. J. M. Scott, Rochester, N. Y.—p. 63.

Epidemiology of Fowl Cholera: VI. Spread of Epidemic and Endemic Strains of Pasteurella Avicida in Laboratory Populations of Normal Fowl. I. W. Pritchett and T. P. Hughes, New York.—p. 71.

Serum Sickness in Rabbits: II. Precipitinogen and Precipitins in Relation to Appearance of Reaction. L. Jones and M. S. Fleisher, St. Louis.—p. 79.

*Transformation in Vitro of R Pneumococci into S Forms of Different Specific Types by Use of Filtered Pneumococcus Extracts. J. L. Alloway, New York.—p. 91.

*Accumulation of Iron in Tuberculous Areas: II. Survival Time of Tuberculous Rabbits Injected with Ferric Chloride. V. Menkin, Boston.—p. 101.

*Effect of Bilateral Suprarenalectomy in Adult Albino Rats on Natural and Acquired Resistance to Bartonella Muris Anemia. J. Marmorston-Gottesman and D. Perla, New York.—p. 109.

*Conditions Influencing Disappearance of Living Bacteria from Blood Stream. P. R. Cannon, F. L. Sullivan and E. F. Neckermann, Chicago.—p. 121.

Influence of Age and Duration of Treatment on Production and Repair of Bone Lesions in Experimental Hyperparathyroidism. H. L. Jaffe, A. Bodansky and J. E. Blair, New York.—p. 139.

Arthus Phenomenon: Local Anaphylactic Inflammation in Rabbit Pericardium, Heart and Aorta. D. Seegal, Beatrice Carrier Seegal and Elizabeth L. Jost, New York.—p. 155.

*Id.: Local Anaphylactic Inflammation in Rabbit Brain. L. M. Davidoff, Beatrice Carrier Seegal and D. Seegal, New York.—p. 163.

Immunity to Pneumococcus Types II and III.—When Ross fed the soluble specific substance of type II pneumococcus to rats, little or no increased resistance to the organism was obtained. When the specific substance of type III pneumococcus was fed, an increased resistance to the virulent organism resulted. The percentage of animals protected was smaller than when the whole or the dissolved cell is fed. When the specific polysaccharide of type I was fed, no immunity against type II or III was obtained, and the ingestion of the specific substances of types II and III did not protect rats against the type I organism.

Urea Tolerance After Unilateral Nephrectomy.—Karsner and his associates describe experiments which demonstrate that although for a month after unilateral nephrectomy in rabbits the remaining kidney shows diminished capacity to hold blood urea within the normal range, nevertheless after four months this function is maintained in essentially the same

degree as if both kidneys were present. This does not imply that all activities of the kidney remaining after unilateral nephrectomy are potentially augmented, but the data offered justify the conclusion that as the remaining kidney undergoes enlargement its functional capacity increases and the process represents a genuine hypertrophy in the critical sense.

Suprarenal Cortex Extract.—The resistance of suprarenal-deficient rats to bacterial intoxication was significantly increased by Hartman and Scott by an extract of the suprarenal cortex. This was shown both for acute intoxication with killed Bacillus typhosus and for chronic intoxication with killed Staphylococcus aureus. During the height of the bacterial intoxication relatively large amounts of the cortical hormone were apparently required to maintain the animals. The authors consider it probable that a human pyogenic infection imposes a severe load on the suprarenal cortex.

Transformation of R Pneumococci into S Forms.—Alloway states that avirulent R pneumococci derived from S forms of a specific type may be changed by growth in broth containing anti-R serum and a heated, filtered extract of S pneumococci of a different type, into virulent S organisms identical in type with the bacteria extracted. This has been accomplished in the case of R strains derived from type II pneumococci, by the use of extracts prepared from type III and type I S forms. The constituents of the extract supply an activating stimulus of a specific nature in that the R pneumococci acquire the capacity of elaborating the capsular material peculiar to the organisms extracted.

Iron in Tuberculous Areas.—Menkin reports that repeated intravenous injections of ferric chloride are followed by an increase in the survival time of tuberculous rabbits. In the series of experiments reported by him this increase amounted to about 78 per cent over the average survival time of control rabbits. Tuberculous animals repeatedly injected with ferric chloride increase in weight during part of the period of these injections. The level reached in the series studied markedly exceeded that attained by control rabbits. Both control and experimental animals die of generalized tuberculosis. There is no indication at the time of death of any differences in the degree of pathologic involvement between the two groups of animals.

Bartonella Muris Anemia.—According to Marmorston-Gottesman and Perla, normal adult Wistar rats (noncarrier stock) are readily infected with Bartonella muris and develop a severe anemia if large amounts of infecting material are used. The normal adult rat of Wistar stock possesses a relatively high natural resistance to spontaneous infection with this organism. Bilateral suprarenalectomy in Wistar rats lowers the natural resistance to a subsequent infection with Bartonella muris. This procedure does not alter the type of tissue response to the virus but lowers the natural resistance of the rat to toxic effects of the infection. The acquired immunity to Bartonella muris conferred by a first infection is not broken down by subsequent suprarenalectomy. The authors believe that the mechanisms of acquired and natural resistance are dependent on different physiologic processes in the organism and are not merely quantitative variations of the same process as is generally assumed.

Disappearance of Bacteria from Blood Stream.—Cannon and his associates noted that the simultaneous intravenous injection into normal and actively immunized rabbits of equal quantities of living staphylococci or paratyphoid bacilli is followed by a distinctly accelerated rate of removal of the bacteria from the blood stream of the immune animals. This altered reactivity is due essentially to specific active immunization. The bacteria pass rapidly through the capillary bed of the lungs, extracellularly and dispersed for the most part, and become generalized through the blood stream. They are quickly removed from the circulating blood in the immune animals and less rapidly in the normal ones, by various organs, particularly the liver and spleen, where they accumulate in enormous numbers, become adherent to the lining membrane of the sinusoids of the liver and apparently to the macrophages of the spleen and are phagocytosed by the macrophages and leukocytes in these organs. Associated with this effect are morphologic changes in the bacteria as shown by swelling, loss of staining power and evidences of increased cohesiveness and decreased viscosity, these changes being apparent as early as two minutes after their intravenous injection. Since these changes are not seen to a marked degree within the lungs or other organs, they are probably the result of a local antigen-antibody reaction of a bacteriotropic type in the two organs generally considered to be most actively concerned with the production of immune bodies. By means of this accelerated bacteriotropic effect in the actively immunized animals, phagocytosis is facilitated and intracellular digestion of the bacteria is enhanced.

Arthus Phenomenon.—Sixteen out of seventeen rabbits actively sensitized by Davidoff and his associates to various antigens by repeated cerebral and intravenous injections showed on intracerebral reinjection of the same antigen local anaphylactic inflammation of the brain at the site of inoculation. Six out of twenty rabbits actively sensitized to either horse serum or egg albumin by extracerebral injection showed, on introduction of the homologous antigen into the cerebrum, local anaphylactic inflammation at the site of inoculation. The pathologic picture of the Arthus phenomenon in the brain of the rabbit resembled that seen in the skin, after allowing for differences in the fundamental structure of the tissues involved. None of the control animals exhibited lesions comparable to those found in the experimental animals. A few controls showed slight hemorrhages due to mechanical injury of blood vessels. Clinical symptoms of varying degrees of severity, often leading to the death of the rabbit, were observed in the sensitized animals. These symptoms were referable to the site of injection.

Journal of Urology, Baltimore

26: 697-761 (Dec.) 1931

*Ascending Infection to Kidney: II. Experimental Study. W. J. Carson, Milwaukee.—p. 697.
*Perinephric Abscess. H. A. Fowler and H. N. Dorman, Washington, D. C.—p. 705.
*Intradermal Immunization in Genito-Urinary Diseases. B. C. Corbus, Chicago.—p. 727.

Ascending Infection to Kidney.—Carson states that since there is a free communication between the lymphatics of the muscular coat of the bladder and that of the ureter, the lymph current of both the bladder and the ureter is from the mucous coat toward the fibrous coat. The perivascular lymphatics communicate with one another in a transverse as well as a longitudinal direction by means of vertical and oblique branches. The lymphatics of the upper portion of the ureter communicate with the lymphatics of the kidney pelvis, and they in turn communicate with the lymphatics of the kidney which accompany the blood vessels forming a capillary network in the cortex, surrounding all tubules like the blood capillaries; the lymphatics of the cortex communicate with those of the capsule. Infections produced experimentally by the author by the injection of an eighteen-hour broth culture of (1) paratyphoid bacillus into the bladder, intramural portion of the ureter or into the wall of the ureter (1 or 2 cm. proximal to the bladder), (2) Staphylococcus aureus and (3) Bacillus coli into the muscular wall of the ureter (distal end) were seen to extend upward along the perivascular lymphatics into the kidney. The necropsies showed no evidence of infection elsewhere in the abdomen or thorax, with the culture from the heart's blood being negative in each experiment; when the organisms were injected into the lumen of the ureter no evidence of infection was produced, save in one rabbit in which a cystitis was produced by the bacteria injected.

Perinephric Abscess.—According to Fowler and Dorman, perinephric abscess is relatively uncommon, compared with surgical lesions within the kidney. The metastatic type is most important from the standpoint of etiology and diagnosis. Diagnosis in the early stages is most difficult. Routine urologic study is important in excluding primary renal disease but of no positive diagnostic value in the metastatic type. Chief diagnostic points are: (1) history of peripheral infections, particularly suppurative skin lesions such as furuncles, boils, carbuncles, paronychia, otitis media, coccus infection of upper urinary tract; (2) unexplained fever; (3) high leukocytosis; (4) roentgen examination, and (5) costovertebral pain and tenderness. As a treatment this is directed to the primary renal lesion in

the secondary type. Nephrotomy or nephrectomy is usually required. In the metastatic cases simple drainage is usually followed by complete recovery. The authors emphasize the importance of thorough drainage.

Intradermal Immunization. — Corbus believes that the function of the skin is more than a simple sheath protector. Whatever irritates the skin, either mechanical or bacterial in nature, not only irritates the histocytic elements of the skin but also as a result of involuntary nervous stimuli promotes the production of polymorphonuclear leukocytes. The antigenic response from some toxins if given intradermally seems capable of producing general immunity for their respective bacteria. The author has obtained good results with intradermal immunization in infections of the genito-urinary tract caused by the gonococcus, staphylococcus, streptococcus, colon bacillus and tubercle bacillus.

Maine Medical Journal, Portland

22: 237-260 (Dec.) 1931

Notes on Common Types of Goiter. I. M. Webber, Portland.—p. 239.
Anal Fissure: Its Detection and Cure. J. F. Montague, New York.—p. 245.
Unusual Foreign Body in Male Urinary Bladder: Case. C. N. Peters, Portland.—p. 248.

Medical Bull. of Vet. Adm., Washington, D. C.

7: 1107-1243 (Dec.) 1931

Treatment and Course of Neurosyphilis: Case Reports. R. T. O'Neil and F. L. Wright.—p. 1107.
*Arrested Pulmonary Tuberculosis. L. H. Fales.—p. 1121.
Study of Cancer in Ex-Service Men. P. B. Matz.—p. 1128.
Oculogyric Crises in Chronic Epidemic Encephalitis: Two Cases. M. L. Compton.—p. 1150.
Roentgenologic Diagnosis of Pulmonary Tuberculosis. W. R. Wynne.—p. 1153.
*Pneumolysis in Pneumothorax with Adhesions: Five Cases. S. T. Taylor.—p. 1160.
Hydronephrosis. J. Christiansen.—p. 1162.
Tumors of Urinary Bladder. H. A. Brady.—p. 1165.
Hyperthyroidism in Tuberculosis. H. L. Ison.—p. 1170.
Physical Therapy in Raynaud's Disease. C. R. Brooke.—p. 1174.
Rapid Paraffin Technic. W. L. McNamara.—p. 1179.
Preparation of Mouth for Early Artificial Dentures. O. A. Grove.—p. 1180.

Arrested Pulmonary Tuberculosis.—Fales believes that on account of the latency of pulmonary tuberculosis and the well being of patients following rest without corresponding changes in the anatomic condition of the lungs, lack of constitutional symptoms should receive but slight consideration in determining an arrest. On the other hand, constitutional symptoms, if found to be due to tuberculosis, may be considered an expression of activity. As it seems to have been conclusively demonstrated that physical signs, especially râles, are of no value in determining progression and retrogression of a tuberculous lesion, it follows that they have no place in a schema of classification. The roentgen ray must be considered the main reliance in determining an arrest or a healed lesion and should receive this place of prominence in a schema of classification. When, by the comparison of serial roentgenograms at quarterly intervals, a lesion is found which is hard and fibrosed and has remained stable for six months, one should consider that an arrest has been attained, provided an additional six months is passed with carefully graduated exercise and observation without reactivation of the disease.

Pneumolysis in Pneumothorax with Adhesions.—Taylor reports five instances of pneumolysis in pneumothorax with adhesions. All the patients had been receiving pneumothorax therapy for six months or more before the pneumolysis operation. The pleural pressure had been maintained as high as possible without causing objectionable symptoms. Adhesions were unyielding and were persistently obstructing suitable collapse. Cavities were unclosed, and diseased areas were not immobile. Clinical pictures indicated variable degrees of unfavorable progress. Then all were operated on by means of the thoracoscope and the electric cautery. Eight months or more since the adhesions were cut, all the patients have gained weight and have ceased coughing; they have decreased sputum, which is bacillus free; their body temperatures are normal and they are so generally improved that the outlook is more hopeful from every point of view. The results seem to illustrate the necessity for obtaining complete collapse of diseased areas at least in certain conditions occurring during pneumothorax therapy. They also appear to exemplify the use of the thoracoscope and the electric cautery as an efficient means for eliminating obstructing adhesions and thereby converting unsatisfactory cases showing rapid and sustained improvement.

Medical Journal and Record, New York

135: 1-52 (Jan. 6) 1932

Acute Upper Respiratory Infection in Infants and Children. S. A. Cohen, New York.—p. 1.
Induced Pneumothorax in Treatment of Pulmonary Tuberculosis. B. P. Potter, Baltimore.—p. 5.
Bran Anaphylaxis as Clinically Manifested in Study of Asthma: Its Relationship to Meteorotelluric Phenomena and Nutrition from an Unstable Blood Etiologic Viewpoint. G. N. Jack, Buffalo.—p. 9.
Occurrence and Significance of Leukopenia: Review of Recent Literature. C. W. Mucklé, Philadelphia.—p. 12.
Radiation Theory of Energy. H. Goodman, New York.—p. 14.
Is Official Dentistry Ready to Adopt the Stomatologic Program: Discussion of a Paper by Alfred J. Asgis. G. M. Anderson, Baltimore.—p. 16.

Minnesota Medicine, St. Paul

15: 1-72 (Jan.) 1932

*Diagnosis and Treatment of Major Infections of Hand. S. L. Koch, Chicago.—p. 1.
*Intra-Abdominal Local Anesthesia. R. P. Caron, Minneapolis.—p. 8.
*Primary Carcinoma of Bronchus: Report of Seventy-One Cases in Which Diagnosis Was Made by Bronchoscopic Examination. P. P. Vinson, Rochester.—p. 15.
Review of Nontuberculous Cases Originally Diagnosed Pulmonary Tuberculosis. R. M. Burke, Oak Terrace.—p. 18.
Significance of Infraclavicular Pulmonary Tuberculosis. E. H. Jorris, Excelsior, Wis.—p. 23.
Tuberculin Test. J. A. Myers, Minneapolis.—p. 26.
Extra-Ocular Palsies. G. R. Kamman, St. Paul.—p. 31.
Recent Advances in Study of Cause and Treatment of Leukorrhea. E. D. Plass, Iowa City.—p. 36.
When Does Disease Begin? Can This Be Determined by Health Examination? C. H. Mayo, Rochester.—p. 40.

Major Infections of Hand. — According to Koch, the major infections of the hand—acute lymphangitis, infections of the tendon sheaths and infections of the fascial spaces of the palm—present definite and unmistakable diagnostic criteria. Lymphatic infections should be treated conservatively and operated on only when there are unequivocal signs of pus formation. Infections of the tendon sheaths and fascial spaces of the palm should be drained carefully and adequately as soon as the diagnosis is made. In the postoperative care of hand infections the prevention of secondary infection, early mobilization and the maintenance of the hand in the position of function during the period of enforced immobilization are important details of treatment.

Intra-Abdominal Local Anesthesia.—Caron reviews some of the advantages, disadvantages and important technical points in the administration of intra-abdominal splanchnic anesthesia, together with the neuro-anatomy of the viscera. He states that local anesthesia for intra-abdominal operations is definitely applicable in cases in which general or spinal anesthesia is contraindicated, in cases of spinal anesthesia in which the anesthesia has waned, and is the method of choice in major abdominal procedures in all cases of prolonged debility from disease, and in the aged. Familiarity with the anatomy, and particularly the neuro-anatomy, of the field of operation is essential before one attempts to adopt this method. Sympathetic anesthesia can be established by injecting the solution into the mesenteries, adnexal supports, subperitoneally and perivascularly.

Primary Carcinoma of Bronchus.—Vinson believes that primary malignant disease of the bronchus is not rare. Any infiltration at the hilus or base of the lung may be the result of malignant disease. Pulmonary symptoms are usually present, but in some cases they may be mild or absent. Bronchostenosis is the most frequently observed physical sign of the disease. Patients suffering from malignant growths in the bronchus have had pulmonary symptoms for many years, and it is possible that prolonged pulmonary suppuration may predispose to the development of carcinoma. Bronchoscopy offers the only means of making a relatively early and accurate diagnosis of the presence of a malignant lesion of the bronchus and is usually indicated in chronic pulmonary disease if tuberculosis is an unlikely etiologic factor. Radium and roentgen treatment has been followed by beneficial results and should be employed unless contraindicated by extensive metastasis or extreme weakness.

New England Journal of Medicine, Boston

205: 1273-1322 (Dec. 31) 1931

*Syphilis of Stomach. J. C. McCann and J. J. Dumphy, Worcester, Mass.—p. 1273.
*Takata-Ara Test on Spinal Fluid: Results of Five Hundred Cases. R. W. Daffinee and Eulalia F. Grzebieniowska, Boston.—p. 1277.
Unusual Renal Anomalies: Cases of Renal Agenesis, Unilateral Congenital Renal Hypoplasia and Crossed Renal Dystopia. E. R. Mintz and J. D. Stewart, Boston.—p. 1282.
Organized Medicine's Interest in Health Insurance Plan for Small Wage Earners. P. K. Brown, San Francisco.—p. 1285.
Progress in Tuberculosis. J. B. Hawes 2d and M. J. Stone, Boston. —p. 1292.

Syphilis of Stomach.—McCann and Dumphy present a case of syphilis of the stomach in which the lesion involved the antrum, causing high-grade obstruction. This increased rapidly, despite vigorous antisyphilitic treatment, making surgical intervention urgent. The diseased antrum was resected and a posterior Polya-Balfour anastomosis made. The patient had a satisfactory convalescence. The specimen showed changes characteristic of syphilis, chiefly thickening of the submucosa and muscularis, lymphocytic infiltration, and obliterative endarteritis. Since operation, antisyphilitic treatment has been continued. At the present time, a year after operation, the patient is in excellent condition, has gained weight, has no indigestion and there is no anemia. The blood still shows a positive Wassermann reaction.

Takata-Ara Test.—Daffinee and Grzebieniowska believe that the Takata-Ara reaction cannot replace the spinal fluid Wassermann test in the diagnosis of neurosyphilis. The reaction is of more value as a corroborative test than as a diagnostic procedure. The Takata-Ara reaction provides an easy, rapid and reasonably accurate test for the detection of abnormal spinal fluids. The ease of performance and the simplicity of interpretation lend themselves to the use of the small laboratory or the practicing physician or neurologist.

Occupational Therapy and Rehabilitation, Baltimore

10: 363-444 (Dec.) 1931

The Plus the Three R's. D. A. Stewart, Ninette, Manitoba, Canada. —p. 369.
Music in Mental Hospitals. Martha A. Kalms, Philadelphia.—p. 381.
Value of Volunteer Organization in Promoting Occupational Therapy. E. C. Foster, Indianapolis.—p. 387.
Museum Meanderings: XI. The Art Institute of Chicago, Illinois. W. R. Dunton, Jr., Chicago.—p. 393.

Ohio State Medical Journal, Columbus

28: 1-80 (Jan.) 1932

Mortality of Gallbladder Surgery. F. C. Herrick, Cleveland.—p. 21.
Course and Prognosis of Arthritis. R. M. Stecher, Cleveland.—p. 25.
Acute Yellow Atrophy of Liver Due to Use of Small Amount of Cinchophen: Report of Case. S. C. Lind, Cleveland.—p. 28.
Psychoneuroses Observed Among Ex-Soldiers. P. G. Tait, Toledo. —p. 30.
Cranial Cerebral Injuries. J. Dickenson, Cleveland.—p. 33.

Public Health Reports, Washington, D. C.

46: 3103-3155 (Dec. 25) 1931

*Typhus Fever: Typhus Virus in Feces of Infected Fleas (Xenopsylla Cheopis) and Duration of Infectivity of Fleas. E. T. Ceder, R. E. Dyer, A. Rumreich and L. F. Badger.—p. 3103.
*Anopheles Atropos D. and K.: New Potential Carrier of Malaria Organisms. B. Mayne and T. H. D. Griffitts.—p. 3107.

Typhus Fever.—Ceder and his associates describe experiments which suggest that a probable mechanism by which endemic typhus fever may be transmitted is through the rubbing of infected feces into wounds made by the biting of the flea or by scratching.

Anopheles Atropos D. and K.—Mayne and Griffitts describe the characteristics of Anopheles atropos D. and K. and present it as a new potential carrier of Plasmodium vivax. In infectivity tests it proved equal in efficiency to Anopheles quadrimaculatus, A. crucians and A. punctipennis used as controls under similar or more favorable conditions.

South Carolina Medical Assn. Journal, Greenville

27: 297-320 (Dec.) 1931

Tumors of Duodenum, Jejunum and Ileum. W. L. A. Wellbrock, Rochester, Minn.—p. 300.
Pernocton as an Analgesic in Obstetrics: Review. J. D. Guess, Greenville.—p. 302.
Lobar Pneumonia: Salt-Alkali Treatment with Allusion to Use of Carbon Dioxide Gas. W. T. Lander, Williamston.—p. 304.

Surgery, Gynecology and Obstetrics, Chicago

54: 1-128 (Jan.) 1932

*Cellular Studies on Thyroid Gland. G. Zechel, Chicago.—p. 1.
*Tumors of Bile Ducts. J. M. Marshall, Rochester, Minn.—p. 6.
*Association of Liver in Disease of Biliary Tract. E. S. Judd, A. C. Nickel and W. L. A. Wellbrock, Rochester, Minn.—p. 13.
Cholecystographic Criteria in Surgical Diagnosis: Analysis and Operative Check in 233 Patients. B. L. Fleming, Philadelphia.—p. 17.
*Primary Idiopathic Abscess of Liver. C. F. Dixon and G. T. Murphy, Rochester, Minn.—p. 20.
*Obstructions to Ureter Produced by Aberrant Blood Vessels. H. H. Young, Baltimore.—p, 26.
Treatment of Acute Empyema. R. B. Bettman, Chicago.—p. 39.
Differential Diagnosis and Treatment of Acute Osteomyelitis of Upper End of Femur, Involving Hip Joint. P. W. Nathan, New York. —p. 52.
Chronic Subdural Hematoma: Simple Drainage as Method of Treatment: Eight Cases. H. W. Fleming and O. W. Jones, Jr., San Francisco.—p. 81.
Congenital Dislocation of Hip: With Especial Co sideration of After-Treatment Following Closed Reduction. W. I. Galland, New York. —p. 88.
*Primary Adenocarcinoma Arising in Meckel's Diverticulum. P. Michael and H. G. Bell, San Francisco.—p. 95.
*Injection Treatment of Varicose Veins: Three Hundred and Twenty-Five Cases. C. Weeks and R. S. Mueller, New York.—p. 98.
Necessity for Bronchoscopic Examination in Distinguishing Primary Carcinoma of Bronchus from Suppurative Disease of Lungs. P. P. Vinson, Rochester, Minn.—p. 105.
Pelvic Diaphragm in Female: Its Form, Function and Method of Repair for Laceration. H. Hill and D. T. van Del, Kansas City, Mo. —p. 108.

Cellular Studies on Thyroid.—According to Zechel, two types of cells exist in the parenchyma of the thyroid: (1) the common thyroid cell, which is the far prevailing type, and (2) the less frequent large cells. This ignored type of cell is distinguished from the common cells of the thyroid in many respects; the cell bodies are larger and, in section, appear triangular, multangular or irregular, showing marked variations between these forms. When arranged in small groups they flatten one another on adjacent surfaces, hence giving rise to various shapes. The large cells are located more often in the interfollicular cell groups than in the follicular wall, and they occur in greater number in the regenerating than in the resting gland. They may be classified in two groups, those with nuclei possessing a distinct chromatin network, and those with nuclei staining densely and evenly. But the latter compose only a small group. In regard to the function it is believed that they are concerned (1) with the formation of new follicles, (2) with the production of colloid, and (3) possibly with the inception of follicular destruction.

Tumors of Bile Ducts.—Marshall presents evidence that benign tumors of the bile ducts are extremely rare, that carcinoma is by far the most common neoplasm of the ducts, and that carcinoma of the bile ducts is more common in males than in females. Gallstones were present in 43 per cent of the cases on which the author's study was primarily based. Obstructive jaundice was found in most cases and may be extreme, fluctuating in severity or intermittent. The presence or absence of pain seems to be of little, if any, diagnostic significance. Typical biliary colic is not uncommon with tumors of the bile ducts unassociated with cholecystitis or cholelithiasis. The specific cause of obstructive jaundice is not easily diagnosed before operation. Positive diagnosis is rarely possible. Obstructive jaundice is usually a surgical problem, regardless of the type of lesion that causes the obstruction. Surgical treatment should have a favorable effect because significant symptoms bring the patient to the physician early in the course of the disease, and the tumor is small, slow growing, and late to metastasize. Obstructive jaundice usually kills the patient before the tumor itself has passed the stage of operability. Operation on tumors of the bile ducts carries a high mortality because of the tendency to hemorrhage and the technical difficulties of operation on the biliary tract. Favorable results, however, are attainable.

Association of Liver in Disease of Biliary Tract.—Judd and his associates are certain that the condition of hepatitis or cholangeitis occurs regularly in the presence of cholecystitis. It is also true that this condition of the liver exists when recognizable change cannot be made out in the gallbladder or bile ducts. Probably, under these conditions, hepatitis is secondary to infection in some part of the portal

system. It is well known that the liver has a marked detoxifying function and that these changes in the hepatic tissue at times may represent the reaction that has taken place as a result of neutralizing either bacterial or chemical toxins that have been brought to the liver by the portal circulation. The authors feel certain that hepatitis may occur as a primary condition and that symptoms which result from it are similar to those of cholecystitis. Furthermore, removal of the gallbladder in these cases of primary hepatitis will relieve the symptoms. In a group of cases studied, it was clearly shown that bacteria can be found in a certain proportion of these cases. It was difficult, however, to establish the importance of these bacteria from the standpoint of the hepatic change.

Primary Idiopathic Abscess of Liver.—Dixon and Murphy state that the occurrence of idiopathic primary hepatic abscess is relatively rare. The etiology usually is obscure. Diagnosis of primary hepatic abscess is seldom made. It should be based on a recent history of some intra-abdominal surgical procedure, remittent fever, the presence of an enlarged, tender liver, and positive fluoroscopic evidence. Treatment should aim at free drainage, the method instituted depending on the size and situation of the abscess cavity. The physical signs, symptoms and pathologic changes are briefly summarized by the authors. A report of one case is included.

Obstructions to Ureter Produced by Aberrant Blood Vessels.—Young calls attention to the fact that obstruction at or near the ureteropelvic juncture is not infrequently caused by vessels which run from the great vessels to the lower pole of the kidney. He reports two cases in which these vessels caused an acute flexure, kinking and obstruction of the ureter, in one case bilateral and in the other unilateral. In the bilateral case the aberrent vessels obstructing the ureter were clamped, divided and ligated. This was followed by a distinct postoperative reduction in the kidney function on this side. At the second operation he carried out a new procedure (a plastic operation) by means of which it was possible not only to resect the very redundant pelvic sac but also inclosing it to draw the ureter away from the veins so as to remove all possibility of obstruction. The result obtained in this case was completely satisfactory. The same procedure was carried out in the second case also with complete success. In the first case, drainage of a huge hydronephrotic sac was kept up for over a month by means of a retained ureteral catheter passing out through the penile meatus. This resulted in a restoration of this kidney, which was previously functionless, to practically normal function, so that it was possible to save this kidney and to carry out the conservative plastic operation on the pelvis with excellent results.

Adenocarcinoma in Meckel's Diverticulum.—Michael and Bell report a case of primary localized adenocarcinoma arising in Meckel's diverticulum, in a man, aged 67. The growth was removed and a lateral intestinal anastomosis was done. The patient is free from any symptoms of intestinal obstruction or extension of the tumor. Previously there have been described and reported only seven other neoplastic processes that were malignant; all were of the sarcomatous variety. A sedulous search of the literature reveals that this is the first case to be reported of a malignant adenocarcinoma of this type in a true Meckel's diverticulum.

Injection Treatment of Varicose Veins.—Weeks and Mueller believe that the injection treatment is the safest and surest method of ridding a patient of varicose veins. No mortality should occur if patients suffering from recent superficial phlebitis are excluded. This is an effective method of treating varicose ulcer and varicose eczema. In the authors' series, 88 per cent of such cases were healed, and remained so, according to the follow-up observations. The technic should be simple, and single injections at each treatment should be given. Quinine and ethyl carbamate is the solution of choice because of sureness of results and absence of cramp. Forty per cent salicylate solution is also an excellent sclerosing agent, but severe cramp accompanies its use. The authors have found 20 to 30 per cent sodium chloride and dextrose and sodium chloride mixtures unsatisfactory solutions for injections, as they are more apt to cause sloughs and, too, they account for the entire number of recurrences noted at follow up.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

6: 313-383 (Dec.) 1931

*Clinical Interpretation of Some Hemorrhagic States. W. G. Wyllie and R. W. B. Ellis.—p. 313.
Case of Severe Anemia in New-Born Infant. E. Pritchard and Jean Smith.—p. 325.
Study of Blood Cholesterol in Childhood. Kathleen M. Ward.—p. 329.
*Gangrene in an Infant, Associated with Temporary Diabetes. R. D. Lawrence and R. A. McCance.—p. 343.
*Multiple Puncture Cutaneous Tuberculin Test. W. S. Craig.—p. 357.
*Studies in Juvenile Rheumatism. C. J. McSweeney.—p. 367.

Abnormal Bleeding.—Wyllie and Ellis state that in arriving at a satisfactory conception of the causes of abnormal bleeding the three factors that may be involved must be considered; these are the platelets, the permeability of the capillary endothelium, and the blood plasma. Thus in the case of hemorrhagic purpura in which the process of bleeding involves a diapedesis of erythrocytes through unbroken capillary walls, the blood platelets, which in the majority of cases are much reduced, and the capillary endothelium have been variously held responsible. In typical hemophilia, on the other hand, in which bleeding does not occur with intact capillaries and in which the platelets are normal or slightly raised in number, the blood plasma is generally regarded as being the defective element. From the pathologic standpoint it would appear that in purpura there is a "platelet-capillary" complex responsible for hemorrhage, while in hemophilia the plasma is abnormal. Both these factors may be inherited or both may arise de novo. The mode of transmission differs in the two cases, however, since the hemophilic factor is sex-linked while the purpuric diathesis affects males and females equally. It is of interest to find, therefore, that purpura hemorrhagica occurs not infrequently in the females of hemophilic families. Although difficult to explain on a pathologic basis, a relationship between hemophilia and purpura exists. The evidence is as follows: 1. Abnormal bleeding of the purpuric type occurs in the females of some hemophilic families with, in certain cases, the full picture of thrombocytopenic purpura. 2. Isolated features characteristic of purpura occur in certain cases of hemophilia, and vice versa. 3. Occasionally alternation of the hemophilic and purpuric state may occur in the same individual. Similarly, the same clinical and pathologic picture may be present in primary purpura arising sporadically or familial in origin, and in purpura which is secondary to sepsis, toxins, or other pathologic conditions. In both primary and secondary types the platelet-capillary complex is affected. In considering cases of abnormal bleeding, therefore, it is well to remember that although the great majority can be conveniently classified, a number of atypical cases will remain to remind one that much of the classification is arbitrary and that no absolute division exists between certain disease entities.

Infantile Diabetes with Gangrene.—Lawrence and McCance report a case of gangrene associated with acute diabetes mellitus in an infant aged 18 days. Treatment with insulin resulted in a cure of the gangrene and complete recovery from the diabetes. The authors searched the medical literature from 1850 to the present day for cases of diabetes in infants under 1 year of age. Twenty-six true cases, including their own, are described and discussed. In two complete recovery was established

Tattoo Tuberculin Test.—According to Craig, the multiple puncture method compares favorably with the Mantoux and Pirquet tests in all forms of tuberculosis in the matter of reliability. It has distinct advantages over other methods in ease of procedure, speed of performance, absence of any but momentary slight discomfort, and absence of any tissue destruction even in the most violent reactions. It is of particular value when used in children, especially for a routine method applicable to large numbers. The fact that it requires no particular skill in its performance makes the method especially suitable for use by any one only occasionally carrying out a tuberculin test.

Juvenile Rheumatism.—McSweeney summarizes the results of four years' special study in juvenile rheumatism among

Cardiff school children. The survey showed that 16.9 per thousand of the school population were affected, of whom 5.82 were suffering from rheumatic heart disease. Further evidence of the relative decrease in the prevalence of rheumatic fever at the expense of the milder and more insidious forms of juvenile rheumatism was obtained. Among 550 case histories investigated, the onset of the disease occurred during the winter or spring months in 475 (66.3 per cent). Among 588 rheumatic children, 433 (73.7 per cent) developed the first rheumatic manifestation between the age of 5 and 10 years. Among 626 rheumatic children examined, 225 (35.9 per cent) were found to be suffering from permanent disease of the heart. An investigation of the social conditions under which 600 rheumatic children lived showed that almost 75 per cent of the children were not suffering from the effects of poverty or privation. Further support for the view that dampness of houses is a factor of no etiologic significance in juvenile rheumatism was obtained. The parents of rheumatic children were found to have themselves suffered from juvenile rheumatism in 44.7 per cent of 279 separate family histories investigated, and 385 rheumatic children were found to have 122 brothers or sisters affected with the disease. Although family relationships play some part in the causation of the disease, no conclusive evidence as to the infectivity of juvenile rheumatism came to light. In 6 per cent of 626 cases the onset of the disease was directly postscarlatinal, but the postscarlatinal cases were found to be less likely to present cardiac sequelae than those having the disease independent of scarlet fever. No distinctive type of rheumatic child was recognized, but a majority of the children were fair-haired and had either blue or gray eyes. The incidence of dental caries was found to be no higher in rheumatic than in nonrheumatic children. A clinical description of the earlier phases of rheumatic carditis is given, and the methods and results of hospital treatment in 222 cases are outlined. The significance of throat conditions in juvenile rheumatism is discussed. Figures are given to support the contention that the state of the tonsils is of little importance in the causation of this disease. Further evidence is adduced as to the limitations of tonsillectomy in the treatment of juvenile rheumatism.

British Medical Journal, London

2: 1165-1204 (Dec. 26) 1931

*Ocular Palsies. G. Holmes.—p. 1165.
Importance of Hormones in Menorrhagia. F. Laquer.—p. 1168.
*Some Points in Connection with Treatment of Glaucoma. R. H. Elliot.—p. 1169.
*Displacements of Uterus and Pelvic Floor. S. G. Luker.—p. 1171.
*Chronic Meningococcic Septicemia with Bacterial Endocarditis: Case. W. D. H. Stevenson.—p. 1173.
After-Care of Congenital Pyloric Stenosis. D. Paterson.—p. 1176.
Use of Antiseptic (Quinanil) with Preparations of Gonadotropic Substances. J. M. Robson.—p. 1177.

Ocular Palsies.—Holmes states that in dealing with loss of the power of movement of any part of the body one usually distinguishes those varieties due to structural lesions of, or functional disturbances in, the upper motor neurons which carry impulses from higher centers to the motor nuclei and their nerves, and those the result of lesions of the nuclei and nerves which innervate the muscles directly. The latter are the lower motor neurons or the final common paths, for by them only can nervous impulses reach the muscles. This distinction of two types of paralysis can be profitably applied to the ocular movements, too, though here, owing to the inaccessibility of the muscles to direct examination, some of the characteristic features of each type of paralysis are not readily recognizable. One cannot, for instance, by the ordinary means of examination detect wasting of the ocular muscles or test easily their electrical excitability; but the essential differences are obvious, for in lesions of the upper motor neurons movements as such are lost and sometimes those that normally are excited by certain impulses only, while in disease of the lower motor neurons the muscles themselves are paralyzed and react to no nervous message. This can readily be seen by contrasting a left internal rectus paralysis with a palsy of conjugate movement of the eyes to the right, for in the former the left eye is not adducted whether the patient attempts to look to the right or to converge, while in the latter case the left eye comes into the inner canthus as readily and fully as the right when the patient tries to converge; the internal rectus muscle is therefore not paralyzed but fails to contract in a certain movement only; that is, looking to the right. This corresponds to the condition one so frequently meets in an upper neuron paralysis of the limbs, in which no movements may occur in response to voluntary effort but they can be excited reflexly or synkinetically. Owing partly to the necessity of an extremely accurate adjustment of the movements of the two eyes in response to numerous stimuli, and partly, perhaps, to the considerable distance apart of the nuclei from which the ocular nerves arise, the nervous mechanisms which control the ocular movements are more complicated, and according to the part of it which is involved two types of supranuclear palsy can be distinguished—so-called conjugate or associated paralysis in which no movement of the eyes in one or more directions can be obtained by any means, and the true supranuclear palsies in which movement of the eyes in certain directions is lost to certain stimuli only but can be affected by others.

Treatment of Glaucoma.—Elliot believes that the importance and value of ocular massage in glaucoma is not, even now, sufficiently appreciated. There are certainly quite a number of cases under treatment for raised tension of the eye in which massage is either not being used at all or else not to the fullest advantage. The technic is simple, and any patient can be taught to use it for himself. Both hands should be used, and the index or middle fingers should be placed on the upper lid as far apart as possible and with the eyes looking downward. Alternate pressure with each finger in turn will rapidly lower the tension of most eyes, but the pressure must be made toward the center of the eye, whereas the great majority of patients employ a stroking movement which is of little value. Strong pressure should not be used; light, quick, almost butterfly movements will do more good and will not hurt the patient at all. In fact, he often offers the comment that he "hardly felt the massage and does it much stronger himself." It is, however, the light, quick pressure, with the fingers far apart and with every stroke toward the center of the eye that is by far the most effective.

Displacements of Uterus and Pelvic Floor.—According to Luker, one of the common causes of general ill health in women (headaches, fatigue, and aches and pains) is displacements of the uterus and pelvic floor. These are common in women who have borne children. As a result, there is a constant feeling of discomfort and pain. If there are, in addition, symptoms of menstrual dysfunction or disturbances of micturition, and these prey on the mind, carrying fear and apprehension of evils worse than those which really exist, then the joy of life is lost and chronic ill health results. Displacements of the uterus and pelvic floor therefore play an important part in the health of women and should always receive the most careful attention. Until thirty years ago, the majority of those suffering from these displacements were treated with rings and pessaries and were compelled to use a douche every day and receive medical attention every three months. Pessaries are not satisfactory, because they do not cure, require frequent attention, and, if neglected, set up discharge and sepsis. They may even be forgotten and give rise to a foul and blood-stained discharge suggesting carcinoma of the cervix. These instruments have now been superseded by carefully planned plastic operations, which give perfect results. Without doubt this is a great advance in gynecology, comparable with the treatment of hernia by operation instead of by truss. The author groups the displacements under three headings; (1) retroversion or backward displacements of the uterus, (2) weakness of the pelvic floor alone, and (3) descent of the uterus and pelvic floor. The two latter groups include all degrees of the condition generally called prolapse.

Chronic Meningococcic Septicemia with Bacterial Endocarditis.—Stevenson reports a case of chronic meningococcic septicemia with bacterial endocarditis which was characterized by prolonged fever, mainly of a daily intermittent type with occasional rigors, with pronounced weakness and loss of energy, and with symptoms that may be grouped as a meningismus. No benefit accrued from specific serum treatment: in fact, the impression of the clinician was that it exacerbated the symptoms, perhaps by liberation of endotoxins. The infection was due to the meningococcus, as shown by the cultural and serologic tests. It was isolated by blood culture,

and the organisms were found as a rule in smears or sections of minute abscesses in various organs. The septicemia was associated with a recent endocarditis, producing toxic changes in the liver and kidney (in the latter probably of some standing), petechiae in the skin, buccal mucosa, pericardium, endocardium and leptomeninges, with minute abscesses in the kidneys, right suprarenal, lung, heart muscle, and in the thickened pia-arachnoid at the base of the brain. The pyemic condition must have developed shortly before death, as evidenced by the size of the abscesses. An acute leptomeningitis was not present, but some of the veins in the pia-arachnoid and of some of the penetrating vessels in the surface of the cortex were packed with polymorphonuclear leukocytes. It is believed that the positive culture from the pia-arachnoid over the vertex and the positive smear from the subdural exudate were due to infected cells escaped from ruptured vessels. A patchy chronic meningitis was present which may have been the residue of an early attack of acute meningitis occurring at the commencement of the illness but recovered from, and the same may be surmised of the subdural exudate.

Indian Medical Gazette, Calcutta

66: 663-772 (Dec.) 1931

*Psychologic Aspects of Opium Addiction. R. N. Chopra and J. P. Bose.—p. 663.
Indian Squills. R. N. Chopra, P. De and B. Mukherjee.—p. 666.
Carbon Tetrachloride in Treatment of Tenia Infections. P. A. Maplestone and A. K. Mukerji.—p. 667.
Group-Specific Substances in Human Body. R. B. Lloyd.—p. 670.
Primary Sarcoma of Heart: Case. V. Nath.—p. 673.
An Anaerobic Urinal. R. C. Wats and W. I. White.—p. 675.
Operation for Utilizing Middle Finger as "Trigger" Finger. P. C. Dutta.—p. 676.

Psychologic Aspects of Opium Addiction.—The experience of Chopra and Bose so far as the opium habit in India is concerned is that in the withdrawal or abstinence symptoms there is a predominant psychic element which can be overcome if the circumstances demand it. This is amply shown by experience of convicts in jail, and men under war conditions habituated to large doses of the drug for years who have to give it up suddenly and yet suffer no marked discomfort or withdrawal symptoms. During the treatment of addicts to rid them of the opium habit, opium can be largely or totally replaced by substances such as gentian or nux vomica preparations in pill form. A series of cases reported by the authors show that if the patient is not aware that he is taking opium, the drug can be effectively given for weeks or months for its therapeutic effect and can be stopped at any moment without producing abstinence symptoms. Physicians, therefore, need not hesitate to use opiates in special cases when these are indicated, provided they conceal the identity of the drug from the patient. The authors now regularly use opiates in this manner in the treatment of asthma, amebiasis or any other condition in which they are likely to benefit the patient. Opiates given in this manner can also be effectively used to detect malingering.

Irish Journal of Medical Science, Dublin

No. **72:** 631-678 (Dec.) 1931

Some Old Journeymen Surgeons. W. Doolin.—p. 631.
Cesarean Section: Its History and Present Status. A. H. Davidson.—p. 642.
*Recent Work on Undulant Fever and Brucella Abortus. A. Thompson.—p. 655.
Brucella Infection: Serologic Study. W. P. O'Callaghan.—p. 663.
Achalasia of Esophagus. W. I. de C. Wheeler.—p. 670.

Undulant Fever and Brucella Abortus.—According to Thompson, some attempt must be made to explain the absence of undulant fever in Ireland, where bovine contagious abortion is second in importance only to bovine tuberculosis. Presumably it is due to the low virulence of the Irish strains of Brucella. At least two varieties of Brucella abortus are described, the bovine and the porcine. The former variety is commonly isolated from milk and infected cattle and is of low virulence for guinea-pigs and apparently also for man. The porcine type, as isolated from cases of hog abortion and occasionally also from cattle, shows slight cultural and metabolic differences from the bovine variety, and produces more severe lesions in guinea-pigs, often with multiple abscess formation. The more serious cases of human infection appear to be due to the porcine strain. It is questionable whether there are justifiable grounds for describing two varieties of Brucella abortus, and it would appear more logical to assume different degrees of virulence in one variety, only the more virulent strains being capable of infecting hogs and man.

Journal of State Medicine, London

40: 1-62 (Jan.) 1932

Harben Lectures, 1931: Recent Researches in Prevention of Maternal, Fetal and Neonatal Mortality. Louise McIlroy.—p. 3.
The Health of the London Citizen. E. Graham-Little.—p. 12.
The Graefenberg "Silver Ring" and Interuterine and Intra-Uterine Pessaries. J. H. Leunbach.—p. 37.
Pulmonary Tuberculosis and Marriage. S. V. Pearson.—p. 46.
Clinical Manifestations of Acute Serum Sickness. D. Brewer.—p. 49.

South Africa M. Assn. Journal, Cape Town

5: 765-800 (Dec. 12) 1931

Recent Results of Cancer Research. M. J. A. des Ligneris.—p. 767.
Menace of Cancer Curers. A. J. Orenstein.—p. 776.
Periosteal Sarcoma of Femur. F. S. du Toit.—p. 778.
Radiotherapy in Nonmalignant (Simple) Disease. P. J. Olivier.—p. 781.

Annales des Maladies Vénériennes, Paris

26: 801-880 (Nov.) 1931

Active Method of Complement Deviation for Rapid Serodiagnosis of Syphilis. V. Zaroubine.—p. 801.
*Problematic Influence of Exfoliative Erythrodermia on Evolution of Syphilis. R. Bernard.—p. 807.
*Splenomegaly Before and During Chancre. A. Dreyfuss.—p. 816.
Urethritis Caused by Crystals in Urine. J. E. Marcel.—p. 825.

Therapeutic Influence of Exfoliative Erythrodermia on Evolution of Syphilis.—Bernard believes that a review of the literature and his own personal observations do not warrant the belief that cure can follow exfoliative dermatitis during the course of syphilis. There are some instances of visceral, cutaneous, mucous or serologic syphilis which may give the appearance of recovery in the sense in which one can scientifically speak of recovery in syphilis. One should not be too confident in so-called posterythrodermic recovery but should continue treatment, not forgetting that an intolerance to one therapeutic agent may cause an intolerance to other antisyphilitic remedies.

Splenomegaly Before and During Chancre.—Dreyfuss reviews thirty-seven cases of syphilis in various stages in which he examined the spleen. On the basis of his observations he draws the following conclusions: From a diagnostic point of view moderate splenomegaly is an almost constant sign and appears usually early in the course of primary syphilis. It is a reliable sign in the differential diagnosis of doubtful cases. With regard to therapy, the author's observations show that the date of generalization given in textbooks as the fifteenth day of the chancre is too late since a sign of visceral generalization as absolute as splenomegaly was observed, in a favorable case, three weeks before the Wassermann reaction became positive.

Archives des Maladies du Cœur, etc., Paris

24: 657-719 (Nov.) 1931

*Researches on Mechanism of Sedimentation Test. C. Achard, A. Codounis and E. Hadjigeorges.—p. 657.
Prefibrillatory Ventricular Tachycardias in Course of Block Caused by Auriculoventricular Dissociation. L. Gallavardin and R. Froment.—p. 670.
Action of Lumbar Puncture on Cardiac Rhythm, Especially in Patient with Lesions of Central Nervous System. P. Veil.—p. 680.

Researches on Mechanism of Sedimentation Test.—Taking for granted that the rate of sedimentation is a plasma reaction, Achard and his co-workers undertook the study of sedimentation in relation to the number of red blood cells, their hemoglobin content, the number of white blood cells, the relative proportion of serum proteins (albumin and globulin), and fibrinogen. They also studied the lipoid equilibrium, certain crystalloids, the plasma chlorides, total nonprotein nitrogen, and the changes in alkali reserve. Among the pathologic states they compared obesity, gastric ulcer, neoplastic disturbances, pernicious anemia, catarrhal jaundice, cirrhosis with ascites, lipoid nephrosis, cardiac insufficiency, diabetes insipidus and Addison's disease. They concluded that the factors that can be accorded importance in the sedimentation of red blood cells are, first, the different protein fractions of the plasma, second, the number of red blood cells and their hemoglobin content,

and finally the decrease in nitrogenous substances and changes in the acid-base equilibrium. The influence of the lipoid equilibrium seems negative and the influence of plasma proteins is uncertain. The mechanism of sedimentation seems very complex and subject to various influences such as surface tension, and electric charge. But in spite of the complexity in the phenomenon taking place during the changes in sedimentation, there is a certain relationship to the development of the morbid phenomena and the general status of health. The study of sedimentation can consequently furnish some indications as to the development, prognosis and treatment of certain diseases.

Nourrisson, Paris

19: 337-410 (Nov.) 1931

Multivitamin Diets in Digestive and Nutritional Disturbances Following Infection. R. Dubois.—p. 337.
*Efficacy and Dosage of Antidiphtheritic Serum. A. B. Marfan.—p. 351.
Blood and Urine in Physiologic Jaundice of the New-Born. Lereboullet, J. J. Gournay and Detrois.—p. 356.

Efficacy and Dosage of Antidiphtheritic Serum.—Marfan discusses the serum treatment adapted to a child aged 4 years with malignant diphtheritic angina, ordinary diphtheritic angina and laryngeal diphtheria with or without angina and considers the treatment of diphtheria in the new-born. He believes the important factors in treatment are the time and the dose of the first injection—the time may be more important than the dosage. The association of antidiphtheritic with antistreptococcic or antipneumococcic serum is not necessary. He adds that it may be more satisfactory not to use serum and instead incorporate preventive vaccination by the use of toxoid.

Paris Médical

2: 441-452 (Nov. 28) 1931

*Tracheobronchial Adenopathy in Children: Clinical and Roentgenologic Aspects. A. le Marc'hadour, P. Dupire and R. Loé.—p. 441.
Inflammation of Liver and Cytolytic Power of Bile. J. Dumont.—p. 450.

Tracheobronchial Adenopathy in Children.—In four of eighty children examined by le Marc'hadour and his co-workers, fine submammary starchlike crepitations were noted. In each of these cases, the roentgenogram revealed the existence of pathologic hilus shadows in both the anteroposterior and profile films; in some instances the film also presented a fissural image. If these indications are not symptomatic of tracheobronchial adenopathy in the strict sense, the authors believe they may be valuable in tracing a tuberculous hilus that is masked under the form of interlobar pleuritis. The authors conclude that the clinical signs attributed to tracheobronchial adenopathy can be seen in the normal individual. The proportion of cases in which they coexist with hilus or lymph node lesions, revealed by roentgen examination, does not permit one to consider them as presumptive signs. Clinical examination alone does not enable one to make a diagnosis of tracheobronchial adenopathy. Anteroposterior and profile roentgen examination should accompany the other clinical maneuvers. The hilus or the pathologic mediastinal images are of two types: the one, heterogeneous and of irregular contour, is parenchymatous, the other, homogeneous and distinctly spherical, is probably lymph nodal. This disease is rare since, among the eighty children who had a number of clinical signs sufficient to make the diagnosis of tracheobronchial adenopathy, it was present only thirteen times.

Presse Médicale, Paris

39: 1725-1748 (Nov. 25) 1931

*Changes in Serum Proteins in Diabetes Mellitus. M. Labbé and R. Boulin.—p. 1725.
Ventricular Rhythms and Arrhythmia. R. Lutembacher.—p. 1726.

Changes in Serum Proteins in Diabetes Mellitus.—Labbé and Boulin assert that the reports in regard to modification of the proteins of the blood in diabetes mellitus are on the whole contradictory. Their personal research over a period of two years includes 212 determinations on 100 patients. The authors used the following values for normal constituents in 1,000 cc. of plasma: total proteins, 70 to 84 Gm.; serum albumin, 42 to 56 Gm.; serum globulin, 23 to 33 Gm.; and the albumin: globulin ratio as 1.5 to 2. Their researches prove that in the absence of other complications that would modify the blood proteins, 68 per cent of the patients with diabetes mellitus have an increase in serum albumin, sometimes to enormous figures, but with an average at 61.85 Gm.; the serum globulin on the contrary is not modified in 56 per cent of the patients and the average figure is 29.01 Gm. In 61 per cent of the patients the total serum protein is increased to an average of 92.99 Gm. and the value of the albumin: globulin ratio in 58 per cent of the patients reaches the 4.36 figure, with an average of 2.32. Therefore, in more than half of the patients with diabetes mellitus, there is an increase in total serum proteins, principally an increase in serum albumin, and an elevation in the albumin: globulin ratio. Hyperalbuminemia is even more frequent (83.33 per cent) when there is a disturbance in nutrition. The duration of the disease and the age of the patient do not influence these figures. Several patients observed during coma, however, did not show any deviation from the normal (albumin: globulin ratio, 2.02). Diabetes complicated by pulmonary tuberculosis revealed hyperalbuminemia in only 50 per cent; complicated by cirrhosis it revealed hypo-albuminemia, hyperglobulinemia and an inversion in the albumin: globulin value to 0.88; one case, complicated by nephrosis, showed a normal globulin value, a fall in the albumin value and albumin: globulin value of 0.68; in three cases of bronze diabetes the average value for the albumin: globulin ratio was 2.64; while the serum proteins in two patients with diabetes complicated by exophthalmic goiter did not differ from those with uncomplicated diabetes. The usual therapy with or without the administration of insulin led to a decrease in total protein and albumin in 70 per cent and a return to normal in 50 per cent of the patients treated. But the improved conditions did not last and there were oscillations in results. The maximum values in total protein and particularly albumin are found in diabetes mellitus, not in conditions such as obesity and hypertension since these are hardly ever associated with diabetes with denutrition and in which the serum protein changes are the same as in diabetes without denutrition. The interdependence between glycosuria and the disequilibrium in blood proteins is proved when it is seen that in the majority of cases the blood proteins become more or less normal when the glycosuria disappears. Two other factors are to be considered; namely, the mechanism of the concentration of the blood and the disturbance in the elaboration of plasma proteins. Dehydration with increased concentration and thickening of the blood has been noted in diabetes and particularly during coma. At the same time there is an enormous increase in blood proteins, chlorides and urea, and an increase in erythrocytes. Concentration of the blood during coma does not explain the hyperalbuminosis; it also seems impossible to establish any law of causality between the volume of urine eliminated and variations in blood proteins; nor can one explain why the albumin varies more than the globulin. It is suggested that disturbance in formation of plasma proteins is really due to an overproduction of serum albumin and therefore due to a disturbance in hepatic function. Obesity with a similar disturbance may therefore be related to diabetes.

39: 1789-1804 (Dec. 5) 1931

*A New Hypertensive Syndrome. H. Vaquez and D.-M. Gomez.—p. 1789.
Antispasmodic Medication in Pathology of Intestine. P. Chêne.—p. 1793.

A New Hypertensive Syndrome.—Vaquez and Gomez assert that an isolated mean value for hypertension should be added to the syndromes of acute, paroxysmal or permanent hypertension. An increase in the mean pressure is its most important sign and can reveal unsuspected morbid conditions and explain their relationship and cause. This new value for hypertension is frequently found by chance in an apparently common disturbance, in the course of a syndrome with a suspected hypertension which is not confirmed by the usual sphygmomanometric procedures, or in the presence of cardiac dystrophies ranging from simple arrhythmia to angina pectoris with sudden and progressive failure of the heart. Elevation of the mean pressure is of great diagnostic value. It persists, in contradistinction to the extreme pressures which vary under various influences; the value is quite high, 4, 5 or 6 cm. of mercury above the normal value. The sphygmomanometric curves take the curious form of a "camel's hump." But this type of curve is not constant in the initial phase of the mean hypertension and, although diagnosis is positive when it is present, its absence does not authorize the rejection of such a diagnosis. The authors find that the elevation of the mean pressure in the course of pregnancy is a premonitory sign of

eclampsia; that mean hypertension can run parallel to systolic hypertension or independent of it; that its persistence following eclamptic attacks ought to preclude a recurrence, and finally that its progressive diminution in the course of repeated crises means improvement and cure. Furthermore, the researches seem to concur with the conclusions of ophthalmologists that there is a relationship between glaucoma and dystrophies in the small or large vessels of the vascular system demonstrated as arterial hypertension with an increased mean pressure. It is further demonstrated that irregularities in cardiac rhythm are capable of causing hypertrophy of the heart and an elevated mean hypertension. This has as a necessary corollary a progressive increase in the size of the heart and in the diameter of the aorta. It is suggested that the study of mean hypertension may help to explain primary enlargement of the heart with unknown pathogenesis.

Revue Belge des Sciences Médicales, Louvain

3: 785-904 (Aug.-Sept.) 1931

Roentgen Therapy and Radium Therapy of Hyperthyroidism. J. Maisin, F. van Goidsenhoven, H. Vassiliadis, L. Jacqmin and J. Steenhout. —p. 785.
*Aberrant Lateral Thyroids. L. van den Wildenberg and A. Dupont. —p. 827.
Left Frontal Tumor with Amnesic Aphasia: Contribution to Motor Aphasia. P. van Gehuchten.—p. 831.
Bismuth Medication. N. Yernaux.—p. 841.
Embryonic Sympathomas. Marie Rome.—p. 853.
Galactose Fixation. J. Arcq.—p. 860.
Calcium Changes During Cure of Experimental Rickets. J. Morelle. —p. 874.
Reticulocytes in Aplastic Anemia. P. Lambin and M. J. Gerard.—p. 891.

Aberrant Lateral Thyroids.—According to van den Wildenberg and Dupont, aberrant lateral thyroids are so seldom encountered that they have seen only two cases in 1,100 operations for goiter. The first occurrence was in a youth, aged 19, who had a voluminous bilateral goiter and five tumors the size of a hen's egg, three at the right and two at the left, strung along the lateral aspect of the neck, from the angle of the lower jaw to the supraclavicular fossa. No connection was found between these tumors at operation and they were all removed. Three months later the patient reappeared with another tumor of the same size but under the left angle of the jaw and corresponding to the extirpated one on the right. It also was removed. Microscopic examination of these tumors showed Hassall's concentric corpuscles within the thyroid tissue. The patient has remained in perfect health four years after the operation. The second occurrence was in a man, aged 63, who for several months had a painless tumor the size of a pigeon's egg in the right supraclavicular fossa. The tumor had enlarged during the previous five weeks. This patient showed a moderate benign hypertrophy of the thyroid slightly more developed to the left and in the right supraclavicular fossa a hard and immovable tumor of the size of a goose's egg. The patient did not have exophthalmos, tachycardia or tremors. At operation this tumor was found to be adherent to the surrounding tissues and to enclose completely the subclavian vein, which had to be ligated. Histologic examination proved that the tumor was malignant, and although the patient has had no local recurrence his general condition has steadily become worse. The localization of the tumors in the first patient and the existence of thymus tissue within the thyroid tissue of these tumors incline the authors to believe that they are an abnormal evolution of the lower branchial clefts. They recommend extirpation of all aberrant lateral thyroids on account of their tendency to become malignant.

Revue Française de Gynécologie et d'Obst., Paris

26: 573-620 (Nov.) 1931

Postpuerperal Metrorrhagia. A. Grosse.—p. 573.
*Filhos's Caustic in Ambulatory Treatment of Chronic Cervical Metritis. A. Chalier.—p. 587.
Tuberculous Meningitis During Pregnancy: Case. E. Gaujoux and Boissier.—p. 591.
Reconstruction of a Vagina by Two Prepuce Grafts. R. Petit.—p. 605.

Filhos's Caustic in Ambulatory Treatment of Chronic Cervical Metritis.—Chalier asserts that the best means of treatment for chronic cervical metritis is cauterization of the uterus using Filhos's caustic. Cauterization can be performed without hospitalization if certain precautions are taken. He mentions three conditions for successful and innocuous cauterization. The first condition is the necessity for a good instillation; the cauterization must be done carefully and under perfect asepsis. The second condition consists in the necessity for a good preliminary examination. This should include digital examination of the internal genitalia and also examination of the cervix uteri with a speculum. This examination should be repeated before each cauterization from the first to the last. Filhos's caustic is absolutely contraindicated in acute metritis and also chronic metritis with salpingitis. A residual adnexitis or a painful parametritis does not constitute a contraindication. The third condition consists in the avoidance of all intra-uterine maneuvers, particularly dilation, immediately preceding cauterization. In general, the author advises light and regular cauterizations; that is to say, they should be of an equal intensity at every point of the diseased cervical mucosa, but without too many repeated applications at any one place. In exceptional cases, thirteen or fourteen cauterizations may be necessary; but in the majority one, two or three treatments are sufficient. The treatments should be made at intervals of fifteen to twenty days. These precautions eliminated all accidents and most favorable results were obtained; in only one case of chronic metritis was it necessary for the author to amputate a cervix with a bistoury.

Schweizerische medizinische Wochenschrift, Basel

62: 1-24 (Jan. 2) 1932

More Prophylaxis in Obstetrics. C. Brunner.—p. 2.
*Aspects of Schüller-Christian's Disease. A. Gigon.—p. 4.
*Atypical Cases of Renal Tuberculosis. R. Allemann.—p. 6.
Tests of Diphtheria Vaccines. G. Sobernheim.—p. 10.
Extent of Variations in Inorganic Composition of Living Tissues. F. Steffen.—p. 13.
Parenteral Calcium Therapy in Influenza. C. Hablützel—p. 15.

Aspects of Schüller-Christian's Disease.—Gigon directs attention to a syndrome in which the hypophyseal symptoms predominate; namely, diabetes insipidus, or adiposogenital dystrophy, also acromegalic symptoms, exophthalmos and defects of the bones. After American authors, who have investigated this syndrome, it is designated as Schüller-Christian's disease. The author observed this syndrome in a woman, aged 48, and relates his observations. There was marked acromegaly, an enlarged sella turcica, also diabetes mellitus, polyuria, enormous lipoidemia, especially hypercholesterolemia and changes in the carbon, nitrogen and electrolyte contents of the blood. The bone defects consisted of osteosclerotic foci of lipoid granuloma in the diaphysis and metaphysis of the tubular bones, and other bones showed defects which were surrounded by osteoplastic formations. The author is convinced that these changes in the bones cannot be entirely explained as a result of acromegaly, but that they are in causal relation with the lipoidosis. Of the cardinal symptoms of the Schüller-Christian disease the following were present in this case: hypophyseal symptoms, especially acromegaly and hypercholesterolemia, also changes of the bones, exophthalmos and xanthomatosis. A symptom that is ordinarily not found in this syndrome but was present in this patient is diabetes mellitus. Another unusual factor was the age of the patient, for this form of lipoidosis occurs almost exclusively in young persons. Beyond the age of 40 the disease is rare.

Atypical Cases of Renal Tuberculosis.—Allemann reports several cases of renal tuberculosis with unusual clinical manifestations. The first group was characterized by colics, the second group by hematuria. In regard to hematuria, the author points out that it may also result from tuberculous ulcerations of the bladder. The third group of atypical cases of renal tuberculosis was conspicuous for its lack of symptoms. The renal tuberculosis was discovered in the course of a careful general examination. The author discusses the differential diagnostic difficulties on the basis of reports in the literature and of his own observations.

Policlinico, Rome

38: 1887-1922 (Dec. 21). Practical Section

*Malariotherapy by Means of Anopheles. A. Pozzi.—p. 1887.
*Method and Value of Registering Readily Visible Electrocardioscopic Heart Beats During Surgical Operations. G. Egidi.—p. 1893.
Acute Cholecystitis Simulating Puerperal Infection in Women Operated on for Cesarean Section. F. G. Trogu.—p. 1898.

Malariotherapy by Means of Anopheles.—Pozzi employed malariotherapy in dementia paralytica by means of Anopheles;

but, instead of using insects captured in the adult stage and then infecting them, he preferred to employ mosquitoes raised in the laboratory. In the Clinica medica at Rome, he has established Anopheles breeding places, beginning with larvae in the second, third and fourth stage, and, by using a careful technic, has succeeded in keeping infected Anopheles alive up to six months. The author calls attention to the advantages of his method as compared with inoculation with malarial blood, and is convinced that it would be advisable to establish malarization centers, in order better to diffuse malariotherapy in dementia paralytica and in other types of morbidity.

Registering Visible Electrocardioscopic Heart Beats During Operations.—Egidi points out and explains the method of constructing and using, in ordinary operative rooms, an apparatus that converts electrocardioscopic records of the currents emanating from heart muscle into readily visible forms.

Rivista di Clinica Medica, Florence

32: 641-676 (Aug. 15) 1931

*Roentgen Diagnosis of Chronic Appendicitis. G. Becchini.—p. 641.
Bilirubin Content of Sputum in Pneumonia. O. Giannetti.—p. 656.
Relations Between Uricemia and Oxalemia. G. Corradini and C. Pegoraro.—p. 665.

Roentgen Diagnosis of Chronic Appendicitis.—Becchini concludes from his researches that the morphologic details derivable from a roentgenologic examination of an injected appendix have only a coadjuvant value for the diagnosis of appendicitis. They do not constitute specific pathognomonic signs, owing to the fact that most of such details may be simulated by the presence of endo-appendicular fecal deposits. Of the functional signs, one—namely, evacuation—has weight in completing the diagnosis, and, more particularly, the greater or less delay with which it is accomplished as compared with cecal evacuation. No value attaches to the mode of filling, as that is not an expression of appendicular functioning. The reduced or abolished appendicular motility is a sign of great value, as the pathogenesis in most cases is connected with adhesions and exudative formations. To the various reflex colic signs no diagnostic value can be attributed, owing to their lack of specificity for the disease in question. The epigastric pain that is elicited on pressing the appendix or its pain spots is of great diagnostic value. The diseased appendix fills more rapidly with the opaque medium than does the normal appendix.

Archivos Argentinos de Pediatria, Buenos Aires

2: 707-786 (Dec.) 1931

Torticollis of the New-Born. C. Lugones and C. Carreño.—p. 707.
Celiac Disease: Intestinal Infantilism (Herter); Chronic Digestive Insufficiency in Children (Heubner). A. Rascovsky.—p. 725.
*Tubero-Infundibulohypophyseal Syndrome. J. M. Macera and F. L. Fernandez.—p. 737.
Celiac Disease. P. de Elizalde and F. E. White.—p. 746.
Pneumococcic Septicemia? in Girl Aged 23 Months: Endocarditis, Periosteal and Nonsuppurating Abarticular Localizations. P. de Elizalde and L. Smith Bunge.—p. 762.

Tubero-Infundibulohypophyseal Syndrome.—Macera and Fernandez discuss the abnormal observations in the case history of their female patient, aged 10 years, who for several months had suffered from recurrences of nocturnal frontooccipital headaches, mental dulness, nycturia, polyuria, tumefaction of the abdomen, polyphagia, polydipsia, excitability, pains in the wrists, knees and ankles, and lately insomnia. Physical examination discloses appreciable roughness of the anterior tibial crests, hyperhidrosis of the head and hands, vasomotor disturbances of the face, ogival palate, short neck with thyroid enlargement, rapid pulse (90), abundance of painless adipose tissue over the abdomen, hips and thighs, increased micturition (3,500 Gm. in twenty-four hours) with excess of indican and traces of blood. Mentally the patient is generally apathetic but has unreasonable crises of excitability and is of slow understanding. Basal metabolism is increased 50 per cent and sugar metabolism is disturbed. The authors believe that the patient has an heredity tainted with syphilis, the more so as her mother has had four spontaneous abortions and her brother has polydactylism. From the clinical observations they are convinced that she is suffering from a tubero-infundibulohypophyseal syndrome because she presents the typical symptoms of anomalies in the metabolism of fats, water, salt and sugar, anomalies of sleep, hunger, thirst and perspiration, and disturbances of the vasomotor regulatory mechanism.

Medicina Ibera, Madrid

2: 761-796 (Dec. 19) 1931

*Cholesterol in Pregnancy, Labor, Puerperium and the New-Born. B. Pérez Velasco and J. A. Maurolagoitia y Unda.—p. 761.
Rôle of Chronic Prostatitis and Verumontanum in Changes of Sexual Function. A. de la Peña and E. de la Peña.—p. 768.
Arterial Pressure and Pulmonary Tuberculosis. A. Navarro Blasco.—p. 787.

Cholesterol in Pregnancy, Labor, Puerperium and the New-Born.—Pérez Velasco and Maurolagoitia y Unda, basing their conclusions on a study of ninety-five hospital cases, state that pregnancy produces a hypercholesteremia becoming manifest in the third month and ending with labor. Its origin is to be found in the corpus luteum, suprarenals, adipose tissue and retriculo-endothelial system. Cholesterol is in greater part synthetically produced by the maternal organism while a small percentage comes as such from the ingested foodstuffs. Hypercholesteremia in pregnancy is indispensable for the life and development of the fetus because from the beginning of embryonic life cholesterol is necessary for the building up of the fetal tissues and is later an integral material of the fetal endocrine glands. During labor, cholesteremia increases as the uterine contractions mobilize the cholesterol already in the walls of the uterus and prevent its passing into the placenta. During the puerperium the percentage of cholesterol in the maternal blood falls rapidly and comes to normal by the eighth or the tenth day, because large quantities are eliminated by the liver and these quantities are still larger in women who do not nurse. Nursing should be recommended to mothers: their milk being the great eliminator of cholesterol, nursing will prevent overloading of the liver and possible formation of biliary calculi. The amount of cholesterol in fetal blood, even when taken from the umbilical vessels, is variable and not in proportion to that found in maternal blood, and percentages in the fetus should be determined only from the blood of the umbilical vein. Cholesterol does not pass as such from maternal to fetal blood but is first reduced by placental lipases, which facilitate its passage through the placenta.

Pediatria Española, Madrid

20: 401-488 (Dec.) 1931

Relation of Syphilis and Tuberculosis with Mortality During the First Year of Life. D. A. Romeo Lozano.—p. 401.
*Infantile Typhoid. J. L. Aldecoa y Juaristi.—p. 428.

Infantile Typhoid.—Aldecoa y Juaristi draws the following conclusions based on the study of the 1930 epidemic of Portugalete: Typhoid in infants instead of being exceptional is frequent. Flies are an important factor in its propagation. Infants with unaccountable fever of from four to six days' duration should be suspected of typhoid; the classic symptoms of the adult do not exist in infants, which nearly always develop bronchitis characterized by discordance between the intensity of the bronchopulmonary signs heard at auscultation and the unimportance of functional disturbances of the respiratory tract. Typhoid aspect of the tongue and sordes invariably follow the bronchitis. The temperature curve is shorter and less typical, although still approximating the typhoid curve. Roseola, splenomegaly and dissociation of pulse with temperature are infrequent. Diarrhea and constipation are not typical, although diarrhea with yellow feces predominates. Blood cultures in the first eight days are positive in 80 per cent of the patients; agglutination is early and constant; leukopenia is present with absence of eosinophils, lymphocytosis and diminution of neutrophils. Prognosis is good. All children 2 years of age should be inoculated against typhoid, and no child suffering from typhoid should be allowed to remain at home. Carriers should be followed up and sterilized. Well fed typhoid patients stand the disease better; there is no particular advantage in an exclusive milk diet. Hydrotherapy is the basis of treatment and calcium chloride is efficacious, while so-called intestinal antisepsis has no effect. Enemas are useless and often prejudicial. Typhoid vaccines should be used early in highly toxic patients. Relapses are infrequent and independent from alimentation.

Prensa Médica Argentina, Buenos Aires

18: 879-928 (Dec. 10) 1931

Certain Forms of Chronic Bronchitis. M. R. Castex.—p. 879.
*Primary Inflammatory Tumors of Stomach. J. Diez.—p. 888.
Menisci of the Knee: Extracondylar Luxation. R. Finochietto and A. Covaro.—p. 901.
Bronchial Aspect of Mitral Diseases. C. Dónovan and A. Battro y Gazotti.—p. 905.
Lipodystrophy, Obesity, Adiposis and Lipomatosis in Relation to Endocrinology. P. M. Barlaro.—p. 913.

Primary Inflammatory Tumors of Stomach.—Diez states that the title of primary inflammatory tumor of the stomach is justified because from the clinical point of view the disease is a nonspecific, infectious granuloma occurring in the walls of the stomach and is a protracted state of spontaneous healing of gastric phlegmon, from which it has to be differentiated. The disease is especially one of later life. Laparotomy discloses a tumor in the anterior wall of the stomach in the vicinity of the greater curvature with antral or fundal localization, at times involving a complete annular segment or the lesser curvature; ordinarily it is definitely cut off at the pylorus, the duodenum remaining intact, while toward the cardia the tumor vanishes gradually. Adhesions are frequent and predominate between the anterior aspect of the stomach, the inferior aspect of the liver, the anterior abdominal wall and the pancreas. The adhesions are soft, fibrinous, unorganized, easily detachable and destined to be absorbed. The gastric serosa is intensely red or pallid and edematous, smooth and shining. The tumorous part may present a thickening of more than 6 cm. and a consistency ranging between soft and leathery. The gastrohepatic omentum and gastrocolic ligament are swollen and often retracted. The lymph nodes present the characteristics of acute and subacute adenitis. The thickening of the gastric wall occurs especially at the expense of the submucosa, may be of edematous, myxomatous or lardaceous nature, and present multiple small abscesses which may fuse, producing the relatively frequent form called suppurative abscess-forming gastritis. Microscopically the mucosa is edematous with hyperplasia of the connective tissue, incipient atrophy of the glands and in the deeper layers leukocytic infiltration. The submucosa shows edema with fibrin formation and numerous hemorrhages of all sizes and in all phases of absorption. Between these are many lymphocyte nodules surrounded by a zone of neutrophil polymorphonuclears, which indicate the tendency to small abscess formation. The muscularis shows streaks of lymphocytes and bands of young connective tissue. The subserosa offers the same lesions as the submucosa with invasion of the fat-nodules by leukocytes. The serous surface is covered with a fibrinopurulent exudate. The symptoms correspond to three stages of the disease, invasion, activity and regression. In the first stage there is sudden epigastric pain, continuous, radiating toward the left shoulder or the spine; chill and general malaise mark the beginning of the rise in temperature, which rapidly reaches 40 C. (104 F.); nausea is followed by vomiting of alimentary, acid and bilious material successively; in a few hours the general condition of the patient looks serious with marked prostration, rapid pulse and low arterial pressure; slight meteorism of the abdomen with poor respiratory mobility and contraction of the rectus abdominis muscles; the epigastrium is painful on palpation and the lower segment of the abdomen is easily depressible although sensitive. This stage lasts from two to ten days with temperature around 39 C. (102.2 F.), incoercible vomiting, intense thirst, constipation and general poor condition, after which there is a rapid regression of the symptoms and establishment of the second stage. Here the predominant symptom is the epigastric tumor, of which the lower limit only is well defined. Its consistency is soft but always less than that of a carcinoma; it is dull on percussion and reduces the inner portion of Traube's semilunar space. During this stage, which lasts from six to ten days, there are exacerbations of the pain, fever, nausea and vomiting. In the intervals there are subfebrile temperature, persistent anemia and poor general condition. Involvement of the pylorus brings on an obstruction syndrome with rapid cachexia. Blood examination reveals a secondary type of anemia. Examination of vomitus of gastric juice shows the absence of free hydrochloric acid. Roentgenograms will complete the clinical picture with the finding of small, disseminated, diffuse spots representing traces of barium insinuated between the two gastric walls. The diagnostic point is that infiltration of barium delimits the greater curvature of the stomach, which continues with the adjacent parts without the slightest deformity or retraction. Primary inflammatory tumors of the stomach evolve naturally toward resolution with restitutio ad integrum of the gastric wall in from five months to one year's time, and with disappearance of adhesions. If the pylorus is involved, the patient dies from inanition and alkalosis. Resection of the affected part of the stomach has given excellent results. If the whole stomach is involved, it is better not to resect but to wait for spontaneous resolution.

Medizinische Klinik, Berlin

27: 1885-1900 (Dec. 24) 1931

*Arteriosclerosis, Hypertension, Nephritis. R. Salus.—p. 1885.
Distress of Motherhood and Several Fundamental, Social Gynecologic Rules of Human Propagation. M. Hirsch.—p. 1889.
Operative Removal of Foreign Body from Duodenum of Nursling. E. Melchoir.—p. 1891.
Parenteral Liver Therapy. A. Woldrich.—p. 1892.
Gas Gangrene Serum Anaphylaxis. H. G. Aronsohn.—p. 1893.
Combined Application of Insulin and Arsenic in Forced Feeding. A. Strasser.—p. 1894.

Arteriosclerosis, Hypertension, Nephritis.—The theories on the correlation between arteriosclerosis, hypertension and nephritis, according to Salus, have undergone considerable changes in recent years. He discusses particularly the significance of the changes in the vessels of the fundus oculi. He shows that the so-called retinitis albuminurica is a gradually developing nutritional and metabolic disturbance which first affects the stratum pigmenti and the outer layers of the retina and which is recognized by its sequelae, mainly by the reparatory inflammation and by the fatty degeneration. The disease of the layers originates in their nutritional basis; namely, in the vessels of the choroid, or in the posterior ciliary vessels, respectively. The author further states that in all patients with retinitis albuminurica there exists or has existed hypertension. He also asserts that the so-called retinitis albuminurica has no relation to a renal disorder. A connection exists only so far as the two disturbances often concur. They are coordinated diseases of different vascular provinces. If in the course of an apparently benign hypertension there develops a retinitis the primary disorder can no more be considered as benign than as if severe renal or cerebral disorders existed. The now existing hypertension is the malignant form. Thus, retinitis has also a prognostic significance. However, in predicting life expectancy it has to be considered whether vital organs such as kidney or brain are involved. The usually quoted two year limit applies of course only to cases with simultaneously existing severe renal disease, and even for these not always. In toxic glomerular nephritis, pregnancy, scarlet fever and similar conditions the prognostic significance of retinitis is of course different. This form of retinitis is curable because the infection, which is the cause of the production of toxin, is curable, or the pregnancy terminates or can be interrupted. In regard to the terminology the author states that the usual designation of "retinitis albuminurica" or "nephritica" should be discontinued, but he admits that it is difficult to find a suitable term. He suggests the terms scarlet fever retinitis, pregnancy retinitis and retinitis in hypertension, the latter term indicating the presence of malignant hypertension, regardless of whether or not renal changes exist.

Münchener medizinische Wochenschrift, Munich

78: 2187-2210 (Dec. 25) 1931

*Ray Therapy of Exophthalmic Goiter. J. Prüfer.—p. 2187.
Discussion on Irradiation of Exophthalmic Goiter. Halberstädter.—p. 2189.
Serodiagnosis of Active Tuberculosis by Means of Examination of Colloidal Buffer Action. K. Klinke and H. Hensel.—p. 2190.
*Clinically Diagnosed Cases of Aneurysms of Cerebral Vessels. G. Lemmel.—p. 2193.
Modification of Anemic Funicular Myelitis by Liver Therapy. H. Nehls.—p. 2194.

Ray Therapy of Exophthalmic Goiter.—Prüfer gives the clinical histories of six patients who died in a coma following roentgen irradiation of an exophthalmic goiter. But although he assumes a relationship between the irradiation and the fatal comas, he also reports that in six other cases of exophthalmic goiter the results of roentgen therapy were favorable and that

five other patients, who had not been subjected to irradiation, also died in a comatose condition. He does not wish to assert that in the six reported cases the irradiation was always the cause of the coma, but he thinks that it led to the manifestation or only exacerbated an already existing coma. From his observations the author concludes that greater discrimination is necessary in the selection of patients for roentgen therapy, and that patients with beginning coma should be excluded from irradiation. However, he does not wish to discredit roentgen treatment of exophthalmic goiter but only wishes to call attention to possible injurious effects.

Clinically Diagnosed Cases of Aneurysms of Cerebral Vessels.—Lemmel relates the clinical observations on three patients with ruptured aneurysm of an artery of the base of the brain. In all of them the condition was diagnosed before death and necropsy confirmed the diagnosis. The clinical manifestations were essentially the same in the three cases; namely, severe apoplectiform attacks with the signs of intrameningeal hemorrhage (meningitic syndrome and hemorrhagic cerebrospinal fluid), and with or without abolition of function. The attacks, which generally developed in healthy and comparatively young persons, often were successive. The author states that following the rupture the diagnosis is generally not difficult, provided the possibility of an aneurysm is thought of. By roentgenologic visualization of the calcified aneurysmal wall the diagnosis may even be possible before the rupture.

Zeitschrift für Klinische Medizin, Berlin

119: 1-292 (Dec. 18) 1931

Genuine and Relative Alkaptonuria. G. Katsch.—p. 1.
Chemical and Biologic Behavior of Synthetic Homogentisic Acid. G. Katsch and R. Hürthle.—p. 10.
Behavior of Homogentisic Acid in Serum of Normal Persons and Persons with Alkaptonuria. R. Hürthle.—p. 14.
Cause of Relative Alkaptonuria. R. Hürthle.—p. 19.
Hypothyroidal and Hyperthyroidal Obesity. A. Lublin.—p. 29.
*Pulmonary Edema Following Epinephrine Intoxication. P. Wichels and H. Lauber.—p. 42.
Technic of Partial Bath with Slowly Increasing Temperatures. H. Scholderer.—p. 50.
Influence of Partial Hot Bath on Heart Action. H. Lauber and H. Scholderer.—p. 54.
Sinus Thromboses Following Administration of Quinidine. H. Scholderer. —p. 64.
Measuring Diameter of Aorta During Certain Phase of Pulsation. H. Lauber, E. L. Przywara and G. Velde.—p. 67.
Bacterial Flora of Stomach of Patient with Phthisis. W. Schlopsnies. —p. 77.
*Diabetes Mellitus as Secondary Disease. O. Ferger.—p. 81.
Clinical Aspects of Thuja Poisoning. F. Brauch.—p. 86.
Significance of Occurrence of Megaloblasts in Circulating Blood. R. Hürthle.—p. 92.
Chyluria. H. W. Burchard.—p. 96.
Mechanism of Pale Hypertension: Vasoconstrictor Substances in Blood During Pale Hypertension. H. Bohn.—p. 100.
Idem: Quantitative Chemical Method for Determination of Choline in Blood. H. Bohn and W. Schlapp.—p. 140.
Idem: Choline Content of Blood in Red and Pale Hypertension. H. Bohn and W. Schlapp.—p. 150.
*Diabetes Mellitus and Vascular System. F. Leutenegger.—p. 164.
Circulatory Conditions in Venous Regions of Varicose Degeneration. M. Ratschow.—p. 177.
Circulatory Dynamics of Heart Block. T. Menne and S. Lauter.—p. 196.
Gallop Rhythm. L. J. Fogelson.—p. 205.
Origin of Profuse Pulmonary Hemorrhages in Cardiac Lung. E. Proft. —p. 218.
Colloid Osmotic Pressure in Biologic Fluids: Exudates and Transudates. P. Meyer and I. Friedheim.—p. 236.
Sedimentation Speed of Erythrocytes and Case of Acute Calciprivic Osteopathy. F. Reiche.—p. 248.
Acute Atrophy of Liver Following Cholangeitis-Cholecystitis. P. Kaczander.—p. 264.
*Diagnosis of Chronic Alcoholism. R. Matossi.—p. 268.
"Autochthonous Water Formation" and "Negative Perspiration Insensibilis": Remarks on Theory and Practice of Indirect Determination of Extrarenal Elimination of Water. A. da Silva-Mello.—p. 279.

Pulmonary Edema Following Epinephrine Intoxication.—Wichels and Lauber report a case of late pulmonary edema after epinephrine intoxication, in a woman, aged 28. Experiments on animals revealed that the pathogenesis of pulmonary edema is extremely complicated and manifold, but they gave no pointers for a causal therapy of late pulmonary edema following administration of epinephrine.

Diabetes Mellitus as Secondary Disease.—In studies on 160 diabetic patients, Ferger found in 10 per cent of the cases a relation to a disorder of the gallbladder. In an additional 9.4 per cent of the cases the anamnesis revealed a previous disorder of the gallbladder or of the liver, but there was no absolute proof of a connection between this disease and the existing diabetes. The author considers as the cause of the relationship between these disorders the proximity of the organs and the plentiful supply of lymph vessels, for these factors make it possible that inflammatory processes spread from one organ to the other. For the same reason it is understandable that a diabetes may develop as secondary disease also in duodenal ulcer. In the last part of the article the clinical history of a patient with disease of the gallbladder is related. A dextrose tolerance test revealed a pathologic blood sugar curve, and the author considers this disturbance in the carbohydrate metabolism as the beginning of a secondary diabetes.

Diabetes Mellitus and Vascular System.—Leutenegger first reviews the literature on vascular changes during diabetes and shows that some authors maintain that there is a special form of arteritis, which is the direct result of diabetes. He then gives a summary report of 1,000 cases of diabetes which were studied for the presence of vascular changes. His clinical observations convinced him that there is no special form of arteritis that is a sequela of diabetes, for if diabetes did cause such a vascular complication, it should also be found in diabetic patients less than 40 years of age, which, however, is not the case. Likewise the statement of the investigators who maintained that vascular changes are present in 90 per cent of diabetic patients in whom the metabolic disorder has persisted for five years or more could not be corroborated by the observations in 1,000 cases, for in 65 of 133 patients in whom the diabetes had persisted for over five years vascular changes were entirely absent. The author found that arterial changes were present primarily in diabetic patients who were in the sixth or seventh decade of life, that is, at an age during which such vascular changes appear also in patients without metabolic disorders.

Diagnosis of Chronic Alcoholism.—In tests on thirty persons, Matossi demonstrates the different behavior of alcohol in the blood of persons who abstain from alcohol or who drink it rarely and in small quantities, to that in persons addicted to alcohol. In persons who are not habitual alcohol consumers, the increase as well as the decomposition of the alcohol in the blood is more rapid than in addicts. Whereas in those who are not habitual drinkers the alcohol has usually completely disappeared within five hours, in persons with chronic addiction to alcohol it is present for nine hours or more. This observation is valuable in the diagnosis of chronic alcoholism, and the author cites one case which clearly illustrates the reliability of this test. The alcohol content of the cerebrospinal fluid does not go parallel with that of the blood but persists much longer. This indicates that in the blood the alcohol is oxidized more rapidly than in the cerebrospinal fluid.

Magyar Orvosi Archivum, Budapest

32: 421-503, 1931

Why do Influenza Epidemics Appear Every Second Year? B. Fenyvessy and L. Kun.—p. 421.
Crystallization Causing Appearance of System of Fibers in Connective Tissue. T. Huzella.—p. 432.
Influence of Organs with Internal Secretion and Feeding on Blood Calcium. A. Beznák.—p. 438.
Influence of Lecithin on Stability of Serum Proteins. I. Went and F. Faragó.—p. 451.
*Importance of Argentaffine Cells. G. Erös.—p. 459.
Microscopic Differences Between Aortic Valves Affected by Syphilis and by Endocarditis. J. Benedict.—p. 467.
Effect of Digitalis and Certain Other Cardiac Drugs on Cultures of Heart Tissue. E. Varga.—p. 488.
Tissue Culture of Rabbit Skin. S. Blazsó.—p. 429.

Importance of Argentaffine Cells.—Erös investigated the so-called yellow argentaffine cells of the gastro-intestinal tract and their relation to disturbance in the function of the glands of internal secretion. The experimental animals were dogs, cats and rabbits. In disturbances in which a removal of the thyroid or suprarenals or the administration of insulin had led to a decrease in the blood sugar, he noted that argentaffine cells at first (immediate action) decreased in number but later (delayed action) increased in number. When administration of epinephrine, the removal of the pancreas, chilling or hunger caused a rise in blood sugar, the argentaffine cells increased

at first and later decreased in number. The author believes there is a close relationship between the number of argentaffine cells in the intestinal canal and the endocrine gland secretory function; the number of these cells can increase or decrease in accordance with the increase or decrease in the activity of the endocrine system; and these results can be reproduced experimentally. Whereas formerly no digestive or any other function was attributed to these cells, the author now finds that they are similar to the silver reducing cells in various glands of internal secretion, such as the suprarenals, hypophysis and pancreas. The silver-reducing cells present in the endocrine glands compare with those in the gastro-intestinal system, not only in the property of reducing silver but also in the property of containing chromaffin and lipoid.

Polska Gazeta Lekarska, Lemberg

10: 981-1004 (Dec. 20) 1931

Introductory Remarks at Opening of Cancer Institute at Lwów. W. Ziembicki.—p. 981.
*Actinic Ray Therapy of Malignant Neoplasms of Tongue and Jaw. A. Cieszyński and E. Meisels.—p. 983.
Case of Cancer Observed from Time of Appearance. S. Meyerson.—p. 987.
Statistical Chart of Cancer and Other Malignant Growths in Małopolska During 1930. K. Węckowski.—p. 988.
Increase in Frequency of Pulmonary Cancer. A. Syrek.—p. 995.
Postmortem Aspect of Increased Frequency of Pulmonary Cancer. W. Nowicki.—p. 997.

Actinic Ray Therapy of Malignant Neoplasms of Tongue and Jaw.—Cieszyński and Meisels are of the opinion that roentgen treatment of tongue and jaw cancer is almost useless or, at best, its action results in amelioration of the subjective symptoms at the price of injury to surrounding structures. Moreover, direct irradiation by aid of localizers is uncomfortable to the patient, while it is doubtful whether it is of any more benefit than irradiation through the cheeks and neck. The failure of roentgen rays, they reason, is due to reduction in radioconductivity of tumor tissue, and serious injury to surrounding tissue will result before the neoplasm will suffer at all. Radium is their agent of choice, applied to the surface or by radiopuncture. In surface application the holders of Stents or the authors are suggested to hold a 0.5 mm. platinum tube containing radium salts in place. The doses are usually high. Radiopuncture is far superior. Platinum-iridium needles from 15 to 20 mm. long are introduced, under local anesthesia, into tumor tissue in the proportion of 1 mg. of radium to each cubic centimeter of tumor tissue. This treatment is most advisable in cancers of the frontal half of the tongue and mucous membrane of the cheeks; in the posterior part the combined treatment (surface and radiopuncture) gives better results. Surgical treatment should be resorted to in early cases that do not require extensive mutilation, also cases refractory to actinic therapy in which the necrotic tissue annihilates the radioconductivity. The primary lesions respond to this treatment if handled correctly. The metastases, however, usually early and abundant in cancer about the mouth, present a different problem; surgery is the only method of treatment.

Acta Medica Scandinavica, Stockholm

41: 1-131 (Feb. 5) 1931. Supplement

*Late Symptoms After Gastro-Enterostomy and Resection of Stomach (Billroth II) for Gastric and Duodenal Ulcer. H. Lublin.—p. 1.

Late Symptoms After Operation for Gastric and Duodenal Ulcer.—Late symptoms arising after operation for gastric and duodenal ulcer are divided by Lublin into four groups: (1) postoperative ulcers; (2) hematemesis, melena and symptoms of gastric character without any definitely demonstrable ulcer; (3) symptoms of intestinal character, and (4) postoperative anemias not occasioned by bleeding. Males seem to be more predisposed to postoperative ulcers than females, whereas females seem more liable to get other postoperative complaints. The postoperative gastric complaints not occasioned by ulcer are due to different factors varying from case to case. Gastritis is of great importance. Adhesions and disturbances in the mobility play a less important part. There is no proportion between the subjective symptoms and their causes. This is due to a nervous condition occasioned by the digestive disturbances caused by the operation and by the operative intervention itself. In cases of definite ulcer and cases presenting a possible ulcer, symptoms arise a relatively long time after operation, whereas in cases without demonstrable ulcer they arise shortly after operation. More than half the patients on whom gastro-enterostomy is performed show stools looser than normal, with increase of mucus and diminished digestion of connective tissue after a Schmidt-Strasburger test meal. Increased fatty contents in the feces are found in 50 per cent of the cases. In only a few instances has increased iodophilia been found. Chemical examination of diarrheal feces shows marked digestive disturbances, while cases with a tendency to constipation show much milder disturbances or none at all. In the case of intestinal disturbances occurring prior to the operation, the chance of such disturbances occurring at a later date is augmented. The most important condition for digestion to take place to its normal extent is to maintain the physiologic way of emptying the stomach. The possibility of sufficient admixture of gastric chyme and duodenal juice is thereby assured and the reflexes occasioning the secretion maintained. A tendency to pronounced nonposthemorrhagic anemia is present in more than two thirds of the cases. Exclusion of the pylorus, whether done in connection with resection or not, appears particularly to predispose to anemia. The cause of nonposthemorrhagic anemia occurring after resection and gastro-enterostomy is unknown. It is probably to be found in functional disturbances of the digestive organs and associated factors brought about by the operation. After gastro-enterostomy the gastric acidity is often reduced; yet in some cases it is unaltered or even raised. Postoperative acidity varies not only from case to case but also within a comparatively short time in one and the same case.

Norsk Magasin for Lægevidenskapen, Oslo

92: 1157-1268 (Nov.) 1931

*Gerson-Hermannsdorfer-Sauerbruch Diet in Tuberculosis of Skin: Results. E. Bruusgaard and E. Hval.—p. 1157.
*Examinations of Blood Sugar at Tuberculosis Sanatorium. E. Svaar.—p. 1176.
*Typhoid Carriers in Western Norway: III. T. M. Vogelsang and M. Haaland.—p. 1183.
*Epidemic Croupous Pneumonia. A. Strøm.—p. 1208.
Two Cases of Erysipeloid. A. Lindaas.—p. 1217.

Gerson-Hermannsdorfer-Sauerbruch Diet in Tuberculosis of Skin: Results.—Bruusgaard and Hval used this diet, somewhat modified to suit Norwegian conditions, during the last two years in seventy-five cases of skin tuberculosis, of which sixty-two were lupus vulgaris, for an average time of seven or eight months. The immediate results have been good and highly encouraging. The diet, they say, has a generally stimulating effect on the natural defensive powers of the organism but does not act through formation of specific antituberculous substances in the skin. The tissue-absorbing action of the diet is notable. Fourteen cases are given in detail.

Examinations of Blood Sugar at Tuberculosis Sanatorium.—From his examinations of the fasting blood sugar in eighty-four patients with pulmonary tuberculosis, on admission for treatment and on discharge, Svaar concludes that determination of the blood sugar is of no value in prognosis.

Typhoid Carriers in Western Norway.—Vogelsang and Haaland report fifteen new typhoid carriers, together with recent cases of infection from previously known carriers. One typhoid carrier reported earlier has become abacillary without operation. In two cases in which cholecystectomy was contraindicated, cholecystotomy was done, with positive results in the one. Of the twenty-five patients with cholecystectomy nineteen, or 76 per cent, were cured of the infection, two died, and four gave negative results. In the cases showing persistent infection, the interval between infection and operative treatment was from seventeen to forty-five years.

Epidemic Croupous Pneumonia.—The epidemic described by Strøm occurred in an orphanage and was due to a type I pneumococcus. This pneumococcus was found not only in the sputum but in cultures from the nose and throat, during the disease and up to seventy-three days after the crisis. During the epidemic 33.3 per cent of the well contacts were carriers, and two and a half months later 16.9 per cent were. The strains from patients were more virulent to mice than were those from carriers.